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AA**TRANSMITTAL LETTER**  
(General - Patent Pending)Docket No.  
115808-239

In Re Application Of: DuPont et al.

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/833,314	April 10, 2001	Steven L. Weinstein	29157	1761	4353

Title: CANNED FILLED PET FOOD

COMMISSIONER FOR PATENTS:

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Transmittal of Appeal Brief (duplicate); Appellants' Appeal Brief (19 pgs. in triplicate) including: Claims Appendix (4 pgs.); Evidence Appendix (2 pgs.); Exhibit A-T; check in the amount of \$500.00; return receipt postcard.

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Dated: December 8, 2005

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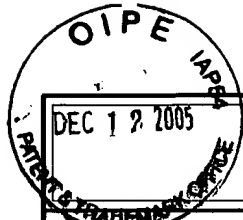
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Heather Foster

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## TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No.  
115808-239

In Re Application Of: Dupont et al.

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/833,314	April 10, 2001	Steven L. Weinstein	29157	1761	4353

Invention: CANNED FILLED PET FOOD

COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on  
**October 13, 2005**

The fee for filing this Appeal Brief is: **\$500.00**

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Dated: **December 8, 2005**

**Robert M. Barrett**  
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## THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant(s): Dupont et al.  
Appl. No.: 09/833,314  
Conf. No.: 4353  
Filed: April 10, 2001  
Title: CANNED FILLED PET FOOD  
Art Unit: 1761  
Examiner: Steven L. Weinstein  
Docket No.: 115808-239

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

### APPELLANTS' APPEAL BRIEF

Sir:

Appellants submit this Appeal Brief in support of the Notice of Appeal filed on October 13, 2005. This Appeal is taken from the Final Rejection in the Office Action dated July 13, 2005.

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### **I. REAL PARTY IN INTEREST**

The real party in interest for the above-identified patent application on Appeal is Nestec, Ltd. by virtue of an Assignment dated July 5, 2001 and recorded at reel 011952, frame 0470 in the United States Patent and Trademark Office.



## **II. RELATED APPEALS AND INTERFERENCES**

Appellants previously submitted an Appeal Brief in support of the Notice of Appeal filed on July 8, 2004. This former Appeal was taken from the Final Rejection in the Office Action dated February 9, 2004 and the Advisory Action dated June 8, 2004. The Patent Office sent a non-final Office Action dated January 4, 2005 that withdrew the Final Rejection dated February 9, 2004. Appellants submitted a Response to the non-final Office Action on April 4, 2005. The Patent Office mailed a Final Rejection in the Office Action dated July 13, 2005. This current Appeal is taken from the Final Rejection dated July 13, 2005.

⊙

### **III. STATUS OF CLAIMS**

Claims 1-17 are pending in the above-identified patent application. Claims 1-17 stand rejected. Therefore, Claims 1-17 are being appealed in this Brief. A copy of the appealed claims is included in the Claims Appendix.

#### **IV. STATUS OF AMENDMENTS**

No amendments to the claims are pending. A copy of the Final Office Action dated July 13, 2005 ("Final Office Action") is attached as Exhibit A in the Evidence Appendix.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

A summary of the invention by way of reference to the drawings and specification for each of the independent and dependent claims is provided as follows:

Independent Claim 1 is directed to a canned pet food product having an upper end and a lower end, the product comprising: an outer, tubular phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and proteins; and an inner phase which extends from the lower end to the upper end and including an edible source of carbohydrate and protein; the inner phase having an appearance different from the outer phase and extending within the outer phase (page 2, lines 7-14 and Figures 3-4).

Independent Claim 2 is directed to a canned pet food product having an upper end and a lower end, the product comprising: an outer, tubular phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and protein; and an inner phase which extends from the lower end to the upper end and including an edible source of carbohydrate and protein; the inner phase having an appearance different from the outer phase; the product obtainable by a process comprising: filling the outer phase into a can; forming a bore into the outer phase for providing a tubular outer phase; filling the inner phase into the bore of the tubular outer phase; sealing the can; and retorting the sealed can (page 2, lines 7-4 and page 2, line 28 to page 3, line 7).

Independent Claim 6 is directed to a canned pet food product having an upper end and a lower end, the product comprising: an outer, tubular phase which extends from the lower end to the upper end and which includes a substantially solid, thermally gelled mixture of carbohydrate and protein; and an inner phase which extends from the lower end to the upper end and which is in the form of chunks of a formulated emulsion product in a gravy; the inner phase having an appearance different from the outer phase and extending within the outer phase (page 2, lines 7-14 and page 2, lines 20-24 and Figures 3-4).

Independent Claim 9 is directed to a process for producing a canned pet food product, the process comprising: filling into a can an outer phase including an edible source of carbohydrate and protein; forming a bore into the outer phase for providing a tubular outer phase; filling an inner phase including an edible source of carbohydrate and protein into the bore of the tubular

outer phase, the inner phase having an appearance different from the outer phase; sealing the can; and retorting the sealed can (page 2, line 28 to page 3, line 7).

Although specification citations are given in accordance with C.F.R. 1.192(c), these reference numerals and citations are merely examples of where support may be found in the specification for the terms used in this section of the Brief. There is no intention to suggest in any way that the terms of the claims are limited to the examples in the specification. As demonstrated by the citations below, the claims are fully supported by the specification as required by law. However, it is improper under the law to read limitations from the specification into the claims. Pointing out specification support for the claim terminology as is done here to comply with rule 1.192(c) does not in any way limit the scope of the claims to those examples from which they find support. Nor does this exercise provide a mechanism for circumventing the law precluding reading limitations into the claims from the specification. In short, the specification citations are not to be construed as claim limitations or in any way used to limit the scope of the claims.

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-17 are rejected under 35 U.S.C. § 103(a) over WO 98/05219 to May ("*May*") in view of GB 1327351 to Quaker Oats ("*Quaker Oats*") and US Patent No. 3,738,847 to Bechtel ("*Bechtel*"), further in view of US Patent No. 2,421,199 to Gutmann ("*Gutmann*"), GB 2,194,125 to Froebel ("*Froebel*"), US Patent No. 2,937,095 to Zitin ("*Zitin*"), US Patent No. 3,385,712 to Dodge ("*Dodge*") and GB 341,760 to Vickers ("*Vickers*"), and further in view of EP 769252 to Ohba ("*Ohba*"), GB 1486634 to Henkel ("*Henkel*"), WO 94/26606 to Mandanas ("*Mandanas*"), U.S. Patent No. 2,344,901 to Routh ("*Routh*"), GB 1583351 to McMahon ("*McMahon*"), EP 675046 to Errass ("*Errass*"), Australia 50797/96 to Hillebrand ("*Hillebrand*"), JP 59-31677 to QP Corp. I ("*QP Corp. I*") and JP 61-100174 to QP Corp. II ("*QP Corp. II*"). The Patent Office now maintains the obviousness rejection in view of 17 references. A copy of each cited references is attached herewith in the Evidence Appendix.

## VII. ARGUMENT

### A. LEGAL STANDARDS

#### Obviousness under 35 U.S.C. §103

The Federal Circuit has held that the legal determination of an obviousness rejection under 35 U.S.C. § 103 is:

whether the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made...The foundational facts for the *prima facie* case of obviousness are: (1) the scope and content of the prior art; (2) the difference between the prior art and the claimed invention; and (3) the level of ordinary skill in the art...Moreover, objective indicia such as commercial success and long felt need are relevant to the determination of obviousness...Thus, each obviousness determination rests on its own facts.

*In re Mayne*, 41 U.S.P.Q. 2d 1451, 1453 (Fed. Cir. 1997).

In making this determination, the Patent Office has the initial burden of proving a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q. 2d 1955, 1956 (Fed. Cir. 1993). This burden may only be overcome “by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings.” *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988). “If the examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent.” *In re Oetiker*, 24 U.S.P.Q. 2d 1443, 1444 (Fed. Cir. 1992).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference or references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Fine*, 837 F.2d 1071, 5, U.S.P.Q.2d 1596 (Fed. Cir. 1988). Second there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986) Finally, all of the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q., 580 (CCPA 1974).

Further, the Federal Circuit has held that it is “impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the

claimed invention is rendered obvious.” *In re Fritch*, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992). “One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention” *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Moreover, the Federal Circuit has held that “obvious to try” is not the proper standard under 35 U.S.C. §103. *Ex parte Goldgaber*, 41 U.S.P.Q.2d 1172, 1177 (Fed. Cir. 1996). “An-obvious-to-try situation exists when a general disclosure may pique the scientist curiosity, such that further investigation might be done as a result of the disclosure, but the disclosure itself does not contain a sufficient teaching of how to obtain the desired result, or that the claim result would be obtained if certain directions were pursued.” *In re Eli Lilly and Co.*, 14 U.S.P.Q.2d 1741, 1743 (Fed. Cir. 1990).

Of course, references must be considered as a whole and those portions teaching against or away from the claimed invention must be considered. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve Inc.*, 796 F.2d 443 (Fed. Cir. 1986). “A prior art reference may be considered to teach away when a person of ordinary skill, upon reading the reference would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the Applicant.” *Monarch Knitting Machinery Corp. v. Fukuhara Industrial Trading Co., Ltd.*, 139 F.3d 1009 (Fed. Cir. 1998), quoting, *In re Gurley*, 27 F.3d 551 (Fed. Cir. 1994).

B. THE REJECTION OF CLAIMS 1-17 UNDER 35 U.S.C. §103(a) SHOULD BE REVERSED BECAUSE THE PATENT OFFICE HAS NOT ESTABLISHED A *PRIMA FACIE* CASE OF OBVIOUSNESS

Regarding Claims 1-17, the Patent Office in the Final Office Action at page 2 alleges that the cited references render obvious Claims 1-17. Appellants respectfully submit that the obviousness rejection of Claim 1-17 should be reversed because the Patent Office fails to establish a *prima facie* case of obviousness. The Patent Office fails to establish a *prima facie* case of obviousness in the rejection because there is no teaching or suggestion to combine the cited references to arrive at the present claims and, even if combinable, the cited references fail to disclose or suggest every element of the present claims.



1. The Canned Pet Food Features of the Claimed Invention

Of the pending claims, Claims 1, 2, 6 and 9 are the sole independent claims. Claims 1, 2 and 6 each relate to a canned pet food product that has an upper end and a lower end; and Claim 9 relates to a process for producing a canned pet food product. The canned pet food product defined in Claim 1 includes an outer tubular phase which is substantially solid and which extends from the lower end to the upper end and includes an edible source of carbohydrate and protein. The food product also has an inner phase that extends from the lower end to the upper end and includes an edible source of carbohydrate and protein. The inner phase has an appearance that is different from the outer phase and extends within the outer phase.

Independent Claim 2 further defines the product as obtainable by a process that includes filling the outer phase into a can; forming a bore into the outer phase for providing a tubular outer phase; filling the inner phase into the bore of the tubular outer phase; sealing the can; and retorting the sealed can.

Independent Claim 6 includes the limitations of Claim 1 and further includes an outer, tubular phase that extends from the lower end to the upper end that contains a substantially solid, thermally gelled mixture of carbohydrate and protein; and an inner phase which extends from the lower end to the upper end. The inner phase is in the form of chunks of a formulated emulsion product in gravy and has an appearance different from the outer phase and extends within the outer phase.

The process defined in Claim 9 includes the steps of filling into a can an outer phase that has an edible source of carbohydrate and protein; forming a bore into the outer phase for providing a tubular outer phase; filling an inner phase that has an edible source of carbohydrate and protein into the bore of the tubular outer phase. Claim 9 also requires that the inner phase has an appearance different from the outer phase in addition to sealing the can and retorting the sealed can.

Appellants recognized the need for canned pet food products having new and interesting appearances to stimulate consumer interest. See, specification, page 2, lines 5-6. The pet food product, and processes for making it, have an attractive appearance formed by two or more discrete phases of different appearances, one within the other. Since the phases are substantially discrete, the product does not have the homogeneous appearance of conventional pet foods. Further, the pet food product of the invention is more suitable for packaging in taller cans in

which the height of the can is at least as large as the diameter of the can because it is more easily removed from these cans than previously known products. See, specification, page 2, lines 15-19.

2. There is no suggestion or motivation to combine the cited references to arrive at Appellants' claimed invention

Appellants submit that the obviousness rejection is unsustainable because there is no teaching or suggestion for combining the cited references to arrive at the present invention. For example, *May* is entirely directed to a canned pet food product having two layers (a base and an upper layer). See, *May*, page 2, lines 11-19. *Quaker Oats* and *Bechtel* relate to a pet food of hash type that contains a center core of eggs completely surrounded (e.g. encased) by the meat mixture. *Quaker Oats*, col. 1, lines 12-15; and *Bechtel*, col. 2, lines 16-20. As a result, *Quaker Oats* and *Bechtel* teach away from the layered pet food product of *May*.

*Ohba* relates to vertically and horizontally packed foods containing two or more packed food products. Similarly, *McMahon* discloses vertically packed foods with two liquid food products. Further, the Patent Office has cited five additional references, namely *Gutmann*, *Froebel*, *Zitin*, *Dodge* and *Vickers*, in support of *May*. None of these references even relates to canned products, and all but one do not even relate to pet food products.

*Gutmann* discloses a method of preserving eggs, particularly to a method in which the separated white and yolks of eggs are preserved in coagulated or hard-boiled condition. In this regard, the main object of *Gutmann* is to convert the eggs into a condition in which they can be easily and safely shipped and stored for an unlimited period of time. See, *Gutmann*, column 1, lines 1-8.

*Froebel* discloses dog treats which are primarily semi-moist products that are co-extruded and have a relatively hard outer skin, and thus are unsuitable for canning. See, *Froebel*, Examples 1-3. *Froebel* distinguishes different categories of pet food, most notably dry, wet and semi-moist as disclosed on page 1. With respect to canned pet foods, *Froebel* discloses various disadvantages, and further suggests that canned products are "unsuitable for use as treats." See, *Froebel*, page 1, line 56-57.

*Zitin* discloses a cheese core surrounded by meat encased in a casing. Col. 1, lines 15-19. The product is prepared by inserting a molding in a casing not a can with a liquid meat product,

cooking the meat product, removing the mold and pouring molten cheese into the center and allowing it to solidify. See, *Zitin*, cols. 1 and 2. One skilled in the art would not be inclined to modify the horizontal arrangement (i.e., upper and base layers) of the *May* canned food product based on the teachings of *Zitin* directed to a vertical arrangement in a casing. In fact, such a combination would frustrate the teaching of *May* that after opening the can and dispensing the pet food, what was the base layer becomes the upper layer. See, *May*, page 2, lines 20-25. Thus, *May* teaches away from the combination with *Zitin*.

*Dodge* relates to cooked egg rolls and unlike Appellants' canned invention is completely enclosed in a flexible, synthetic plastic. See, *Dodge*, col. 2, lines 29-34. The synthetic plastic outer wrapper can be either initially tube like of a selected cross-section, or in the form of a strip that is formed into a tube like form of a selected cross-section adjacent the extrusion nozzle. See, *Dodge*, col. 4, lines 4-7.

Moreover, like *Zitin*, *Dodge* relates to a food product with a vertical layer arrangement. Indeed, in *Dodge's* egg roll structure, the outer layer does not extend from the top end to the bottom end (see, *Dodge*, Figs. 1 and 2). This is due to packaging constraints such that the egg yolk core can be seen in addition to the egg white portion (i.e., albumen) of the egg roll. In this regard, the primary purpose of *Dodge* is to produce a hard-cooked egg roll packaged in film which would represent enough convenience for both residential and commercial use (see, *Dodge*, col. 1, lines 32-42). As with *Zitin*, there is no motivation to combine or modify *May* with *Dodge* to obtain Appellants' invention.

*Vickers* relates to meat rolls (i.e., butchers meat, such as beef, veal, etc.) rather than canned pet food products, as required by the claimed invention (see, *Vickers*, col. 1, lines 11-16). The meat roll combines course particles and finer size particles in visually separate phases (see, *Vickers*, Figs. 1 and 2) which is said to improve taste (see *Vickers* at col. 1, line 53 to col. 2, line 63). There is no motivation to combine *Vickers* with *May*, where, in *May*, parallel superimposed layers are formed in contrast to an annular-type configuration disclosed in *Vickers*.

The remaining references do not even relate to food products, let alone pet food products. For example, *Henkel* merely relates to a cosmetic; *Mandanas*, like *Henkel*, has nothing to do with food, particularly pet foods, but merely relates to dispensing a viscous paste from containers, such as squeezable tubes; *Routh* merely relates to ice cream and products thereof; *Errass* merely relates to a condiment product that is dispensed from a tube; and the *QP Corp.*

references relate to peanut butter and products thereof. Therefore, Appellants do not believe one skilled in the art would consider that references unrelated to pet food have any relevance with respect to the canned pet food product of *May*.

To arrive at the claimed invention, it is respectfully submitted that the Patent Office has impermissibly used hindsight to piece together the cited art and has selectively picked and chosen teachings of each of the references in an attempt to explain what the claimed invention discloses. The Court of Appeals for the Federal Circuit has criticized this motivation to combine analysis as being “hindsight reconstructive” because the motivation to combine the references was first disclosed in the present invention. *In re O’Farrell*, 853 F.2d 894, 902-903 (Fed. Cir. 1988). In fact, the number of references (17) relied on by the Patent Office to support the present rejection is evidence by itself that the invention is not obvious.

3. The cited references, alone or in combination, fail to teach or suggest every element of the claimed invention

Appellants submit that the cited references, alone or in combination, fail to disclose or suggest every element of the present claims. As admitted in the Office Action dated June 3, 2003 (attached as Exhibit B) and the Office Action dated November 14, 2002 (attached as Exhibit C), the primary reference, *May*, fails to disclose or suggest the outer, tubular phase features required by the claimed invention.

For example, *May* fails to disclose or suggest an outer tubular phase which extends from the lower end to the upper end and an inner phase which extends from the lower end to the upper end extending within the outer phase as required, in part, by the present claims. Instead, *May* discloses clearly defined upper and base layers such that, after opening the can and dispensing the pet food, what was the base layer becomes the upper layer (see, *May*, page 2, lines 20-25) rather than vertical layering as in the present invention. In fact, *May* goes on to reinforce that “[t]he cans produced by the process contain a product which comprises a lower layer made up of solid pieces of food in a thin sauce and having a substantially conical recess and an upper layer of a substantially solid foodstuff. The layers are clear and distinct...” *May*, page 9, lines 17-20. Therefore, *May* fails to teach or suggest an outer, tubular phase which extends from the lower end of the canned pet food product to the upper end of the canned pet food product as in the claimed invention.

The canned pet food of Appellants' invention has the advantage of being suitable for use in larger cans where the height of the can is at least as large as the diameter of the can. See, specification, page 2, lines 1-19. In taller cans filled with a product like *May's*, the upper and base layers would be more difficult to shake out into the pet's bowl or dish. Based on at least these reasons, *May* is deficient with respect to the claimed invention.

The Patent Office relies on sixteen other references that teach different cross-sectional shapes of products, many of which are unrelated to canned pet food, to support that it allegedly would have been obvious to use such cross-sectional shapes as a matter of choice or design. See Office Action dated November 14, 2002, page 3. Accordingly, the Patent Office relies on references that disclose a particular cross-sectional shape rather than the invention as a whole which includes an outer, tubular phase which extends from the lower end to the upper end of a canned pet food product and an inner phase which extends from the lower end to the upper end of the canned pet food product.

The Patent Office relies on *Quaker Oats* and *Bechtel* in support of the deficiencies of *May* with respect to the outer and inner phases of the claimed invention. See, Office Action dated June 3, 2003. The primary focus of these references relates to a pet food of hash type that contains a center core of eggs. *Quaker Oats*, col. 1, lines 12-15; and *Bechtel*, col. 1, lines 34-36. But, nowhere do these references provide that the egg core extends from the top to the bottom of the can as do the inner and outer phases of the present invention. See, Figs. 1-8 of *Quaker Oats* and *Bechtel*. Instead, the egg core is completely encased within (e.g. completely surrounds) the meat mixture. See, *Bechtel*, column 2, lines 16-20. Consequently, these references do not remedy the deficiencies of *May*.

Most of the remaining references relate to non-pet food products. As a result, they fail to disclose or suggest a pet food product or method of making same as required, in part, by the present claims. Moreover, the remaining references fail to disclose or suggest a pet food product having an outer tubular phase which extends from the lower end to the upper end and an inner phase which extends from the lower end to the upper end extending within the outer phase as required, in part, by the present claims

For example, *Ohba* relates to vertically and horizontally packed foods containing two or more packed food products. Similarly, *McMahon* discloses vertically packed foods with two liquid food products. Neither reference discloses an outer tubular phase which extends from the

lower end to the upper end and an inner phase which extends from the lower end to the upper end extending within the outer phase. Thus, neither reference can remedy the deficiencies of *May*.

*Gutmann* discloses a method of preserving eggs, particularly to a method in which the separated white and yokes of eggs are preserved in coagulated or hard-boiled condition. In this regard, the main object of *Gutmann* is to convert the eggs into a condition in which they can be easily and safely shipped and stored for an unlimited period of time. See, *Gutmann*, column 1, lines 1-8.

*Froebel* discloses dog treats which are primarily semi-moist products that are co-extruded and have a relatively hard outer skin, and thus are unsuitable for canning. See, *Froebel*, Examples 1-3. *Froebel* distinguishes different categories of pet food, most notably dry, wet and semi-moist as disclosed on page 1. With respect to canned pet foods, *Froebel* discloses various disadvantages, and further suggests that canned products are “unsuitable for use as treats.” See, *Froebel*, page 1, line 56-57.

*Zitin* discloses a cheese core surrounded by meat encased in a casing. Col. 1, lines 15-19. The product is prepared by inserting a molding in a casing not a can with a liquid meat product, cooking the meat product, removing the mold and pouring molten cheese into the center and allowing it to solidify. See, *Zitin*, cols. 1 and 2. With respect to Claim 1, *Zitin* fails to disclose a canned product, or a tubular phase, or an inner phase extending from the lower end to the upper end. With respect to Claim 2, *Zitin* also fails to disclose filling the outer phase into a can, sealing a can and retorting the sealed can. With respect to Claim 6 *Zitin* also fails to disclose an outer phase that includes a substantially solid, thermally gelled mixture of carbohydrate and protein. Lastly, method Claim 9 of Appellants’ invention is completely unrelated to *Zitin*.

*Dodge* relates to cooked egg rolls and unlike Appellants’ canned invention is wrapped being completely enclosed in a flexible, synthetic plastic. See, *Dodge*, col. 2, lines 29-34. The synthetic plastic outer wrapper can be either initially tube like of a selected cross-section, or in the form of a strip that is formed into a tube like form of a selected cross-section adjacent the extrusion nozzle. See, *Dodge*, col. 4, lines 4-7.

Moreover, like *Zitin*, *Dodge* relates to a food product with a vertical layer arrangement. Indeed, in *Dodge*’s egg roll structure, the outer layer does not extend from the top end to the bottom end (see, *Dodge*, Figs. 1 and 2) and thus fails to disclose or suggest the present claims.

This is due to packaging constraints such that the egg yolk core can be seen in addition to the egg white portion (i.e., albumen) of the egg roll.

*Vickers* relates to meat rolls (i.e., butchers meat, such as beef, veal, etc.) rather than canned pet food products, as required by the claimed invention (see, *Vickers*, col. 1, lines 11-16). The meat roll combines course particles and finer size particles in visually separate phases (see, *Vickers*, Figs. 1 and 2) which is said to improve taste (see *Vickers* at col. 1, line 53 to col. 2, line 63).

The Patent Office appears to rely on certain additional references in support of the position that the outer, tubular features of the claimed invention are an allegedly obvious matter of choice and/or design. Even if combinable, clearly these references are deficient with respect to the claimed invention as well. For example, *Henkel* merely relates to a cosmetic; *Mandanas*, like *Henkel*, has nothing to do with food, particularly pet foods, but merely relates to dispensing a viscous paste from containers, such as squeezable tubes; *Routh* merely relates to ice cream and products thereof; *Errass* merely relates to a condiment product that is dispensed from a tube; and the *QP Corp. I and II* references relate to peanut butter and products thereof. Consequently, they fail to disclose or suggest a pet food product or method of making same as required, in part, by the present claims. Moreover, these references fail to disclose or suggest a pet food product having an outer tubular phase which extends from the lower end to the upper end and an inner phase which extends from the lower end to the upper end extending within the outer phase as required, in part, by the present claims

#### 4. Conclusion

The principal reference *May* is deficient with respect to the specific features of the claimed invention, particularly with respect to a canned pet food product with outer and inner tubular phase features as claimed. With respect to the secondary references, Appellants believe that these references are deficient as well and none of the cited references provides any motivation for a combination that would render the invention obvious. Perhaps for this reason, no objective reason for any such combination was given in the Office Actions and a *prima facie* case of obviousness has not been made out.

Of the sixteen references cited by the Patent Office, only four references relate to pet food: *Quaker Oats*, *Bechtel*, *Ohba* and *Froebel*. However, neither *Quaker Oats*, *Bechtel*, *Ohba*

nor *Froebel* teach or suggest an outer, tubular phase which extends from the lower end to the upper end of a canned pet food product and an inner phase which extends from the lower end to the upper end of the canned pet food product as in the claimed invention. Consequently, the only references related to a pet food cited by the Patent Office fail to remedy the deficiencies of *May*.

Other references relied on by the Patent Office (*McMahon*, *Dodge*, the *QP Corp.* references, *Gutmann*, *Zitin* and *Vickers*) not only fail to cure the deficiencies of *May* but are culled from unrelated and non-analogous art offering no motivation to combine with *May*. The remaining references relied on by the Patent Office (*Henkel*, *Mandanas*, *Routh* and *Errass*) do not even relate to food products, let alone pet food products. To rely on such non-analogous references under 35 U.S.C. §103 is improper. See MPEP 2141.01(a).

For the reasons discussed above, the combination of the cited references is improper. Moreover, even if combinable, the cited references do not teach, suggest, or even disclose all of the elements of Claims 1-17, and thus, fail to render the claimed subject matter obvious for at least these reasons. For the reasons discussed above, Appellants respectfully submit that Claims 1-17 are novel, nonobvious and distinguishable from the cited references and are in condition for allowance.



### VIII. CONCLUSION

Appellants respectfully submit that Claims 1-17 are non-obvious in view of the cited references under 35 U.S.C. §103(a). Accordingly, Appellants respectfully submit that the rejection under 35 U.S.C. §103(a) is erroneous in law and in fact and should therefore be reversed by this Board.

Respectfully submitted,

BELL, BOYD & LLOYD LLC

BY 

Robert M. Barrett  
Reg. No. 30,142  
Customer No. 29157

Dated: December 8, 2005

## **CLAIMS APPENDIX**

### **PENDING CLAIMS ON APPEAL OF U.S. PATENT APPLICATION SERIAL NO. 09/833,314**

1. A canned pet food product having an upper end and a lower end, the product comprising:

an outer, tubular phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and proteins; and

an inner phase which extends from the lower end to the upper end and including an edible source of carbohydrate and protein; the inner phase having an appearance different from the outer phase and extending within the outer phase.

2. A canned pet food product having an upper end and a lower end, the product comprising:

an outer, tubular phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and protein; and

an inner phase which extends from the lower end to the upper end and including an edible source of carbohydrate and protein; the inner phase having an appearance different from the outer phase;

the product obtainable by a process comprising:

filling the outer phase into a can;

forming a bore into the outer phase for providing a tubular outer phase;

filling the inner phase into the bore of the tubular outer phase;

sealing the can; and

retorting the sealed can.

3. The canned pet food product according to claim 1 in which the outer phase is a thermally gelled mixture.

4. The canned pet food product according to claim 1 in which the inner phase comprises chunks of a formulated emulsion product in a gravy.

5. The canned pet food product according to claim 1 in which the outer phase comprises about 25% to about 75% by volume of the product and the inner phase comprises about 25% to about 75% by volume of the product.

6. A canned pet food product having an upper end and a lower end, the product comprising:

an outer, tubular phase which extends from the lower end to the upper end and which includes a substantially solid, thermally gelled mixture of carbohydrate and protein; and

an inner phase which extends from the lower end to the upper end and which is in the form of chunks of a formulated emulsion product in a gravy; the inner phase having an appearance different from the outer phase and extending within the outer phase.

7. The canned pet food product according to claim 1 in which the product has a height at least as large as its diameter.

8. The canned pet food product according to claim 1 in which the phases each have a moisture content of about 70% to about 85% by weight.

9. A process for producing a canned pet food product, the process comprising:  
filling into a can an outer phase including an edible source of carbohydrate and protein;  
forming a bore into the outer phase for providing a tubular outer phase;  
filling an inner phase including an edible source of carbohydrate and protein into the bore of the tubular outer phase, the inner phase having an appearance different from the outer phase;  
sealing the can; and  
retorting the sealed can.

10. A process according to claim 9 in which the phases each have a viscosity of about 1500 cp to about 3500 cp when filled into the can.

11. The canned pet food product according to claim 2 in which the outer phase is a thermally gelled mixture.

12. The canned pet food product according to claim 2 in which the inner phase comprises chunks of a formulated emulsion product in a gravy.

13. The canned pet food product according to claim 2 in which the outer phase comprises about 25% to about 75% by volume of the product and the inner phase comprises about 25% to about 75% by volume of the product.

14. The canned pet food product according to claim 2 in which the product has a height at least as large as its diameter.

15. The canned pet food product according to claim 1 in which the phases each have a moisture content of about 70% to about 85% by weight.

16. The canned pet food product according to claim 1 in which the product has a height at least as large as its diameter.

17. The canned pet food product according to claim 1 in which the phases each have a moisture content of about 70% to about 85% by weight.

## EVIDENCE APPENDIX

- EXHIBIT A: Office Action dated July 13, 2005
- EXHIBIT B: Office Action dated June 3, 2003
- EXHIBIT C: Office Action dated November 14, 2002
- EXHIBIT D: WO 98/05219 to May ("*May*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT E: GB 1327351 to Quaker Oats ("*Quaker Oats*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT F: US Patent No. 3,738,847 to Bechtel ("*Bechtel*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT G: US Patent No. 2,421,199 to Gutmann ("*Gutmann*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT H: GB 2,194,125 to Froebel ("*Froebel*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT I: US Patent No. 2,937,095 to Zitin ("*Zitin*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT J: US Patent No. 3,385,712 to Dodge ("*Dodge*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT K: GB 341,760 to Vickers ("*Vickers*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT L: EP 769252 to Ohba ("*Ohba*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT M: GB 1486634 to Henkel ("*Henkel*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT N: WO 94/26606 to Mandanas ("*Mandanas*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT O: U.S. Patent No. 2,344,901 to Routh ("*Routh*") , cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT P: GB 1583351 to McMahon ("*McMahon*"), cited by the Examiner in the Office Action dated July 13, 2005
- EXHIBIT Q: EP 675046 to Erras ("*Erras*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT R: Australia 50797/96 to Hillebrand ("*Hillebrand*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT S: JP 59-31677 to QP Corp. I ("*QP Corp. I*"), cited by the Examiner in the Office Action dated July 13, 2005

EXHIBIT T: JP 61-100174 to QP Corp. II ("*QP Corp. II*"), cited by the Examiner in the Office Action dated July 13, 2005



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,314	04/10/2001	Christophe Dupont	112701-239	4353
29157	7590	07/13/2005		
BELL, BOYD & LLOYD LLC P. O. BOX 1135 CHICAGO, IL 60690-1135				
			EXAMINER WEINSTEIN, STEVEN L	
			ART UNIT 1761	PAPER NUMBER



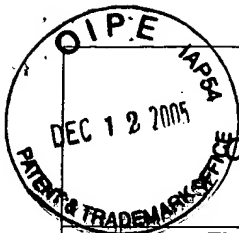
DATE MAILED: 07/13/2005

*Due: 10-13-05*

Please find below and/or attached an Office communication concerning this application or proceeding.

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BELL, BOYD & LLOYD  
INTELLECTUAL PROPERTY DOCKET  
JUL 18 2005  
ATTY *hmb-myB*  
DOCKET # *115808-239*





## Office Action Summary

Application No.	Applicant(s)	
09/833,314	DUPONT ET AL.	
Examiner	Art Unit	
Steven L. Weinstein	1761	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

The terminal disclaimer filed 4/6/05 has been approved and placed of record in the file, thus obviating the obvious type double patenting rejections.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over May et al (WO'219), in view of Quaker oats (GB '351), and Bechtel ('847) further in view of Gutmann ('199), Froebel et al (GB '125), Zitin ('095), Dodge et al ('712) and Vickers (GB '760), further in view of Ohba (Ep '252), Henkel (GB, '634), Mandanas (WO '606), Routh ('901), McMahan (GB '351), Errass (Ep '046), Hillebrand (Austral. '797/96), QP Corp (Jp '677) and QP Corp (Jp '174) for the reasons given in the Office actions mailed 1/4/05, 2/9/04, 6/3/03 and 11/14/02.

All of applicants' remarks filed 4/6/05 have been fully and carefully considered but are not found to be convincing for the reasons of record. Note that the secondary art does not have to teach pet food in a composite concentric arrangement since May et al already teaches pet food in cans in a composite pattern. The secondary art is relied on to show that composite concentric arrangements of products including foods is notoriously conventional. Applicants' are therefore employing a known composite pattern/design and achieve no new unexpected result therefrom.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

Application/Control Number: 09/833,314  
Art Unit: 1761

Page 3

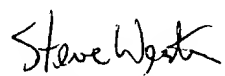
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven L Weinstein whose telephone number is (571) 272-1410. The examiner can normally be reached on Monday-Friday 6:30am to 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Weinstein/af  
June 17, 2005

  
STEVE WEINSTEIN  
PRIMARY EXAMINER 1761



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,314	04/10/2001	Christophe Dupont	112701-239	4353

29157 7590 06/03/2003

BELL, BOYD & LLOYD LLC  
P. O. BOX 1135  
CHICAGO, IL 60690-1135

EXAMINER

WEINSTEIN, STEVEN L

ART UNIT

PAPER NUMBER

1761

DATE MAILED: 06/03/2003

04E: 9-3-03

Please find below and/or attached an Office communication concerning this application or proceeding.

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JUN 09 2003

ATTY: RMB  
DOCKET #: 112701-239

# Office Action Summary

Application No.

09/833314

Applicant(s)

DUPONT ET AL

Examiner

S. WEINSTEIN

Group Art Unit

1761

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- ☒ Responsive to communication(s) filed on 2/19/03
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1-17 is/are pending in the application.
- Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1-17 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

## Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other \_\_\_\_\_

Office Action Summary

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over May et al (WO 98/05219) in view of Quaker Oats (GB 1327351) and Bechtel (3,738,847), further in view of Gutmann (2,421,199), Froebel et al (GB 2,194,125), Zitin (2,937,095), Dodge et al (3,385,712) and Vickers (GB 341,760), further in view of Ohba (EP 769252), Henkel (GB 1486634), Mandanas (WO 94/26606), Routh (2344,901) McMahon (GB 1583351), Erras (EP 675046), Hillebrand (Austral. 50797/96) and QP Corp (Jp 59-31677) and QP Corp (Jp 61-100174).

The rejection is essentially same for the reasons extensively detailed in the last Office action mailed 11/14/2002, paper no. 6. As noted previously, claims 1 and 6 differ from May et al only in the recitation that the outer phase is tubular, (if one construes tubular to be a hollow cylinder) because the outer phase of May et al is hollow but frusto-conical. A series of references were previously cited to show that it was notoriously old in the packaging art to provide edible or inedible products with various shaped inner and outer phases. Applicants have not conceded that the difference between the claims and the art taken as a whole was an obvious matter of design; i.e., the substitution of one geometrical shape for another geometrical shape. To further evidence the conventionality of an inner phase and a tubular outer phase and to emphasize applicants are not the first to provide this specific geometric configuration,

Gutmann, Froebel et al, Zitin, Dodge et al and Vickers, all previously cited but not applied, are relied on to teach that a tubular outer phase and inner core composite food is, of course, notoriously old. To modify May et al and substitute one conventional geometric configuration for the composite food for another conventional geometric configuration for the composite food would therefore have been unequivocally obvious. The remaining references are applied for the reasons given in the Office action mailed 11/14/02, paper no. 6. Note, e.g., that both Quaker Oats and Bechtel disclose a canned composite pet food that has an outer phase and an inner phase and the only real difference between the two and applicants' claim 1 is whether in the references one could call the outer phase tubular even though it fully encloses the inner phase. Note, too, the two references use applicants' filling technique.

All of applicants' remarks filed 2/19/03, paper no. 7 have been fully and carefully considered but are not found to be convincing. Patentability is not predicated on the number of references applied, but what the art taken as a whole teaches. See. In re Gorman 18USPQ 2d, 1886. In fact, in In re Gorman, the Court noted that where teachings relied upon to show obviousness were repeated in a number of references, the conclusion of obviousness was strengthened. It is noted that applicants main reason for the composite product is to provide new and interesting appearances. May et al and the art taken as a whole does that. It is urged that the art taken as a whole does not teach a tubular outer phase specifically relating to food. This issue is hopefully now moot in view of the new ground of rejection. However, even if these new references were not applied, whether the secondary references were edible or inedible

Art Unit: 1761

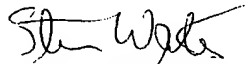
would be irrelevant since they were only be relied on the teach conventional, obvious, geometric shapes. Finally, it is urged that applicants do not believe that the May products are suitable for use in larger cans. This urging is merely an opinion, not supported by any factual, probative, evidence. In any case, the urging is not convincing since Quaker Oats, for example, discloses tall containers. Note, too, applicants have not responded to the examiners query concerning the nature of the container of May et al. that was <sup>made</sup> in the last Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Weinstein whose telephone number is 703-308-0650. The examiner can normally be reached on Monday-Friday 7:00am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 703-308-3959. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

S. Weinstein/mn  
May 20, 2003

  
STEVE WEINSTEIN  
PRIMARY EXAMINER

1761



## Office Action Summary

Application No.

09/833314

Applicant(s)

DUPONT ET AL

Examiner

S. WEINSTEIN

Group Art Unit

1761

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
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- ☒ Claim(s) 1-17 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement

### Application Papers

- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some\* ☐ None of the:
  - ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

### Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 5
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

Office Action Summary

Art Unit: 1762

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over May et al (WO 98/05219) in view of Henkel (GB '634), Mandanas et al (WO 94/26606) and Routh ('901), further in view of applicant's admission of the prior art, McMahon (GB '351), Hillebrand et al (Australia 50797/96), Erras (EP 675046), QP Corp (Jp '677), QP Corp (Jp '174), Quaker Oats (GB '351), Bechtel ('847), May et al (WO '521) and Ohba (EP '252).

In regard to claim 1, May et al (WO 98/05219) discloses a canned pet food product having an upper end and a lower end, wherein the product comprises an outer phase which is substantially solid and which extends from the lower end to the upper end and which includes an edible source of carbohydrate and protein and an inner phase which extends from the lower end to the upper end and includes an edible source of carbohydrate and protein, the inner phase having an appearance different from the outer phase and extending within the outer phase. Note that May et al discloses that the phases or layers differ in appearance and texture (page 1, para. 1) and that the inner phase fills a recess in the outer phase that extends "entirely through" the base layer (page 9, col. 2) so that the inner phase will extend from the lower end to the upper end. Claim 1 recites that the outer phase is "tubular". Apparently, the definition of a tube is a hollow cylinder. The outer phase of May et al is hollow but apparently not tubular, being more frusto-conical. Thus, claim 1 appears to differ from May et al in the shape of the outer phase; i.e. cylindrical vs. frusto-conical. Once it is known to provide a package with two or more

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components in two or more different phases, the particular shape of the phases in the package is seen to have been an obvious matter of choice and/or design especially in view of the fact the art is replete with examples of varying cross sectional shapes of phases including tubular outer phases. The shape of the outer phase would also have been an obvious function of the particular conventional method of forming the two phases. Henkel is cited to show a multiphase package of viscous components which do not mix due to their viscosities and wherein the phases can be arranged in various patterns as a function of the conventional manner of filling including the use of one or more nozzles. One of the cross-sectional patterns, for example, shows a series of cylinders within an outer phase. Mandanas also teaches multiphased products packaged in a container wherein the phases are maintained separate due to their viscosities and wherein the phases can be given various cross-sectional patterns as a function of the method of filling the phases into the container. Among the various cross-sectional geometric patterns for the phases is provided by an outer tube and inner core(s). See e.g., fig. 10 in this regard. Note that Mandanas et al teaches the containers can be filled using a conventional coaxial filling nozzle (page 7, para. 1). Routh is another reference that teaches varying the cross-sectional patterns in a multi-phase product contained in a container. Note that the inner phase forms a cylindrical shape and is achieved by a filler placed near the bottom and moved upwardly through the outer phase as the inner phase is dispensed therein. To therefore modify the cross-sectional pattern of May et al and provide a tubular outer phase would have been obvious in view of the art taken as a whole teaching the conventionality of varying the cross-sectional patterns of multi-phase products as desired. McMahon, Hillebrand et al, Erras, the two QP Corp references, Quaker Oats, Bechtel, May et al (WO '521) and Ohba are all relied on as further evidence to show the art is replete with

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example of packaged multi-phase products wherein the phases assume various patterns. Note, too, although claim 1 does not say so, the phases in all the references maintain themselves without mixing primarily due to their viscosity which is substantially the same to prevent mixing or where one is much more viscous (even solid) compared to the other phase to prevent mixing. In regard to claim 2, how the phases were formed in the container is not seen to affect the final product. The final product is an outer tubular phase and an inner phase which can be made by several different techniques including providing a removable or dissolvable partition, prehardening, etc. Thus, even what conventional technique used to form the bore would have been obvious. Applicants' disclosed technique which includes a filler tube inserted into the product is taught by the art taken as a whole. This rejection applies to the method claims as well. In regard to claims 3, 4, 5 and 8, May et al ('219), along with applicants admission of the prior art, disclose thermally gelled pet food compositions and formulated emulsion pet food compositions are conventional and both teach combinations of both types of pet food compositions and May et al ('219) is considered to show the particular sequence or order recited. In regard to the dimensions of the can, although it is not clear if May et al ('219) meets the limitations of the can height being at least as large as its diameter, the art, taken as a whole, discloses this dimensional relationship is, of course, conventional. See e.g. McMahon and Quaker Oats and Bechtel. Applicants are requested to confirm if May et al teaches this relationship.

The references cited on the USPTO 892 form are cited as additional art of interest to show various composite foods.

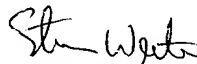
Art Unit: 1762

Any inquiry concerning this communication from the examiner should be directed to Steven Weinstein whose telephone number is 703-308-0650. The examiner can generally be reached on Monday-Friday 7:00am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 703-308-3959. The fax phone numbers for the organization where this application is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is 703-308-0661.

S. Weinstein/mn  
November 8, 2002

  
STEVE WEINSTEIN  
PRIMARY EXAMINER 1761  
11/13/02

<b>INFORMATION DISCLOSURE CITATION</b> (Use several sheets if necessary) OCT 01 2001	ATTY DOCKET NO. 112701-2	SERIAL NO. 09/833,314
	Dupont et al.	
	FILING April 10, 2001	GROUP 1761

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
SW	A1	1,952,101	3/1934	Snodgrass	—	—	
SW	A2	2,005,245	6/1935	Stover	—	—	
SW	A3	2,007,572	7/1935	Jancsy	—	—	
SW	A4	2,260,298	10/1941	Cowling	—	—	
SW	A5	2,334,052	11/1943	Wedin	—	—	
SW	A6	2,344,901	3/1944	Routh	—	—	
SW	A7	2,768,086	10/1956	Bliley	—	—	
SW	A8	2,975,732	3/1961	De Pasquale	—	—	
SW	A9	3,117,871	1/1964	Bahr et al.	—	—	
SW	A10	3,244,537	4/1966	Cease	—	—	
SW	A11	3,295,467	1/1967	Gropen	—	—	

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		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
SW	A12	1 327 351	8/22/73	Great Britain	—	—		
SW	A13	1486634	9/1977	Great Britain	—	—		
SW	A14	1583351	1/1981	Great Britain	—	—		
SW	A15	7114281	12/10/81	Australia	—	—		
SW	A16	59-31677	2/1984	Japan	—	—		

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

SW	A17	Cat Foods and Goods Guide 1992 Pet Supplies Guide, Cat Edition.
SW	A18	Cat Food and Goods Guide 1994 Pet Supplies Guide, Cat Edition.

EXAMINER

SWEINSTEIN

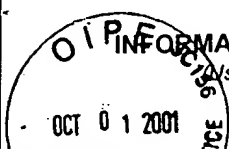
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				FILING April 10, 2001		GROUP 1761		
<b>U.S. PATENT DOCUMENTS</b>								
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
BW	B1	3,372,654	3/1968	Bell	—	—		
BW	B2	3,511,669	5/1970	Swartze et al.	—	—		
SW	B3	3,552,980	1/1971	Cooper et al.	—	—		
SW	B4	3,681,094	8/1972	Rogers et al.	—	—		
SW	B5	3,808,341	4/30/74	Rongey et al.	—	—		
SW	B6	3,738,847	6/1973	Bechtel	—	—		
SW	B7	3,922,353	11/25/75	Bernatovicz	—	—		
SW	B8	4,328,254	5/1982	Waldburger	—	—		
SW	B9	4,574,174	3/1986	McGonigle	—	—		
BW	B10	4,666,723	5/1987	Invernizzi et al.	—	—		
BW	B11	4,781,939	11/01/88	Martin et al.	—	—		
<b>FOREIGN PATENT DOCUMENTS</b>								
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
SW	B12	0 121 813	10/17/84	Europe	—	—		
SW	B13	61-100174	5/1986	Japan	—	—		
SW	B14	0 285 409	10/5/88	Europe	—	—		
SW	B15	93/24024	12/9/93	WIPO	—	—		
SW	B16	94/26606	11/1994	WIPO	—	—		
<b>OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)</b>								
<div style="position: absolute; bottom: 10px; right: 10px; text-align: left;"> OCT 03 2001  TC 1700 </div>								
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	FILING <b>April 10, 2001</b>	GROUP <b>1761</b>

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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
SW	C1	4,900,572	2/13/90	Repholz et al.	—	—
SW	C2	5,132,137	7/21/92	Reimann et al.	—	—
SW	C3	5,567,466	10/22/96	Dupont-Delhoven	—	—
SW	C4	5,792,504	8/1998	Poppel et al.	—	—

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DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO
SW C5 675046	10/1995	Europe	—	—		
SW C6 50797/96	10/1996	Australia	—	—		
SW C7 0 769 252	4/23/97	Europe	—	—		
SW C8 97/02760	1/30/97	WIPO	—	—		
SW C9 98/05218	2/12/98	WIPO	—	—		

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**


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**Notice of References Cited**

Application No.

09/833314

Applicant(s)

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1761

Page 1 of 1

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B	5928705	7/99	MATTHEWS ET AL	426	92
C	3229615	1/66	RATTNER	426	92
D	3511665	5/70	SWARTZ ET AL	426	92
E	2937095	5/60	ZITIN	426	92
F	3385712	5/68	DODGE ET AL	426	284
G					
H					
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*	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS
N	2194125	3/88	GBRITAIN	FROEDEL ET AL	426	92
O	63-177768	7/88	JAPAN	Y. MATSURA	426	92
P	744312	6/70	BELGIUM		426	92
Q	63-22167	1/88	JAPAN	MATSURAI	426	92
R	341760	1/31	GBRITAIN	VICKERS	426	284
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**NON-PATENT DOCUMENTS**

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(See Manual of Patent Examining Procedure, Section 707.05(a).)

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>A23K 1/10, 1/14, 1/18, A23P 1/08</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 98/05219</b> <b>(43) International Publication Date:</b> 12 February 1998 (12.02.98)
<b>(21) International Application Number:</b> PCT/EP97/03884 <b>(22) International Filing Date:</b> 17 July 1997 (17.07.97)  <b>(30) Priority Data:</b> 60/023,475 6 August 1996 (06.08.96) US 60/036,733 24 January 1997 (24.01.97) US  <b>(71) Applicant (for all designated States except US):</b> SOCIETE DES PRODUITS NESTLE S.A. [CH/CH]; P.O. Box 353, CH-1800 Vevey (CH).  <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> MAY, Stephen [US/US]; 1111 N. 49th Street, St. Joseph, MO 64506 (US). DING-MAN, Steven, E. [US/US]; 4601 Cheyenne Street, St. Joseph, MO 64503 (US). RAYNER, Luz [US/US]; 4904 Creek Crossing Drive, St. Joseph, MO 64507 (US).  <b>(74) Common Representative:</b> McCONNELL, Bruce; Société des Produits Nestlé S.A., P.O. Box 353, CH-1800 Vevey (CH).		<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i>
<b>(54) Title:</b> LAYERED CANNED PET FOOD		
<b>(57) Abstract</b>  A canned pet food product having a base layer and an upper layer. The base layer is formed of solid food pieces in a gravy and has a substantially conical recess formed into its upper surface. The gravy makes up about 20 % to about 40 % of the base layer. The upper layer is formed of a substantially solid foodstuff and fills the conical recess formed into the base layer. The substantially solid foodstuff provides about 20 % to about 80 % by weight of the pet food product.		

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## Layered Canned Pet food

### Field of the Invention

5 This invention relates to a canned pet food product which contains layers of different appearance and texture. The invention also relates to a process for producing the canned pet food product.

### Background to the Invention

10 Canned pet foods are traditionally available in two forms; meat loafs and chunk-type products. The meat loafs are particularly well known. They are usually prepared by comminuting raw meat material and mixing it with water, salt, spices, curing agents, gelling agents and, if necessary, fats to provide a batter. The batter is then heated. The heated batter is then filled into cans to form, after retorting and cooling, a meat loaf.

15 These meat loaf products are popular because they are easily manufactured, readily digested, very palatable to animals, and are readily formulated to contain necessary nutrients and trace elements. However they are in the form of a uniform, homogeneous mass which lacks the striated and chunky appearance of meat. This may be a disadvantage for pet foods since a meat-like appearance can greatly enhance consumer acceptability.

20 The chunk-type products overcome this difficulty since they are formulated emulsions which simulate the appearance of meat. One example of these formulated emulsions is described in US patent 4,781,939. The formulated meat emulsion described in the patent is produced by first forming a meat emulsion from a meat source. Dry ingredients such as dry proteinaceous materials (for example wheat gluten and soy flour), vitamins, minerals and the like are then mixed into the meat emulsion to provide a viscous emulsion. The viscous emulsion is then run through a high-speed emulsion mill in which the emulsion is rapidly heated to a temperature in the range of 102°C to 118°C. The emulsion leaving the emulsion mill is fed to a holding tube where the protein in  
25 30 the emulsion coagulates to form a solid emulsion product. This solid emulsion product is then cut into chunks. The chunks are highly striated and resemble natural meat chunks in appearance and texture.

Another example of these formulated emulsions is disclosed in US patent 5,132,137. However, in this process the viscous emulsion is heated to a  
35 temperature of 40 to 70°C in the emulsion mill; which is much lower than that in the process disclosed in US patent 4,781,939. The heated emulsion takes longer

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to coagulate and is therefore held in a holding tube for a longer time. The emulsion is then formed into strands and baked in an oven at a core temperature of 70 to 95°C.

5 Canned pet food products which are a combination of the meat loafs and the chunk-type products are also known. These products are formed of a matrix of the meat loaf surrounding pieces of formulated emulsion products.

However there is a need for canned pet food products which have new and interesting textures and appearances to further stimulate consumer interest.

10 Summary of the invention

Accordingly, in one aspect, this invention provides a canned pet food product comprising:

15 a base layer comprising solid food pieces in a gravy and having a substantially conical recess formed into its upper surface, the gravy comprising about 20% to about 40% by weight of the base layer; and

an upper layer comprising a substantially solid foodstuff capable of supporting the base layer when the pet food product is inverted and filling the conical recess formed into the base layer, the substantially solid foodstuff comprising about 20% to about 80% by weight of the pet food product.

20 Often, after opening a can of pet food, the consumer shakes the contents out into the pet's bowl or dish. Therefore, what was the base layer becomes the upper layer in the pet's bowl or dish. The consumer is therefore presented with an attractive topping of solid food pieces in a gravy above a clearly defined layer of a substantially solid foodstuff, which includes a conical portion extending into  
25 the solid food pieces in a gravy.

The recess into the base layer may extend either partially through the base layer to be conical in shape or entirely through the base layer to be frusto-conical in shape. The upper layer may include an upper portion above and covering the upper surface of the base layer.

30 Preferably, the solid food pieces in the base layer are a formulated emulsion product having the striated appearance of natural meat. The formulated emulsion product preferably comprises about 65% to about 95% by weight of a meat material and about 5% to about 35% by weight of a proteinaceous material. If desired, the formulated emulsion product may be in the form of flakes.

35 The gravy preferably comprises water and about 2% to about 8% by weight of a starch; for example about 4% by weight of starch. The starch is

preferably a heat sensitive starch such that its viscosity increasing properties are reduced after being heated. In particular, it is preferred that the gravy has an initial viscosity in the range of about 300 to about 800 centipoise prior to retorting of the can but a lower viscosity after retorting. It is particularly preferred that the gravy have an initial viscosity of about 350 to about 450 centipoise; for example about 400 centipoise.

The base layer preferably has a moisture content of about 60% to about 70% by weight. It is particularly preferred that the base layer has a moisture content of about 63% to about 67% by weight; for example about 65% by weight.

The substantially solid foodstuff is preferably a gelled meat loaf, cooked rice, cooked noodles, or aspic, or mixtures thereof. The aspic may contain food pieces such as cooked vegetable pieces.

When the solid foodstuff is a gelled meat loaf, the upper layer preferably has a moisture content of about 70% to about 85% by weight.

During filling, the upper layer preferably has a viscosity in the range of about 1800 to about 4000 centipoise.

In another aspect, this invention provides a process for producing a canned pet food product having at least two layers, the process comprising:

filling a base layer comprising solid food pieces in a gravy into a can, the gravy having a viscosity in the range of about 300 to about 800 centipoise and forming about 20% to about 40% by weight of the base layer;

filling an upper layer into the can, the upper layer comprising a settable foodstuff having a viscosity in the range of about 1800 to about 2500 centipoise and, upon cooling, forming a substantially solid foodstuff, the settable foodstuff comprising about 20% to about 80% by weight of upper and base layers;

sealing and spinning the can for causing the base layer to flow up the sides of the can and forming a substantially conical recess into the upper surface of the base layer; and

retorting the sealed can.

In a yet further aspect, this invention provides a process for producing a canned pet food product having at least two layers, the process comprising:

filling a base layer comprising solid food pieces in a gravy into a can, the gravy having a viscosity in the range of about 300 to about 800 centipoise and forming about 20% to about 40% by weight of the base layer;

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spinning the can about a vertical axis for causing the base layer to flow up the sides of the can and forming a substantially conical recess into the upper surface of the base layer;

5 filling an upper layer into the can, the upper layer comprising a settable foodstuff having a viscosity in the range of about 2500 to about 4000 centipoise and, upon cooling, forming a substantially solid foodstuff, the settable foodstuff comprising about 20% to about 80% by weight of upper and base layers;

sealing the can; and

retorting the sealed can.

10 Preferably the base layer is filled into the can to provide about 30% to about 50% by weight of the upper and base layers.

In a yet further aspect, this invention provides a canned pet food product having at least two layers and produced according to the process defined above.

15 Detailed description of the Invention

Embodiments of the invention are now described, by way of example only. To produce the pet food product, a mixture of solid food pieces in a gravy and a settable foodstuff must be separately prepared.

20 a) Preparation of the solid food pieces in gravy:

The mixture of solid food pieces in a gravy may be prepared by simply mixing together solid pieces of meat or other material, or both, and a gravy. The meat material may be any suitable meat source, for example, muscular or skeletal meat, meat by-products or a mixture of meat and meat by-products. The meat material may be in the form of chunks or may be in the form of flakes. However, if a meat material is used, it is preferred if the solid food pieces are a formulated emulsion product. Solid pieces of other material may also be used; such as cooked rice grains, pasta or noodles, vegetable pieces, and the like.

30

If a formulated emulsion product, is used, it may be produced by any suitable procedure, for example the procedures described in US patents 4,781,939 and 5,132,137. In these procedures, a meat material is formed into a meat emulsion; usually by grinding and then emulsifying blocks of the meat material. The meat material may be any suitable source of animal protein; for example the muscular or skeletal meat of mammals, poultry, and fish or meat by-products

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such as hearts, liver, kidneys, tongue and the like. The exact composition may be selected according to cost and the desired flavor. The meat material conveniently may be in frozen form prior to grinding. Alternatively or in addition, the meat material may be in the form of meat meals such as poultry meal, fish meal, red meat meal and mixtures thereof. Again the exact composition may be selected according to cost and the desired flavor. Mixtures of any of the above may also be used. The emulsification may be carried out in any suitable equipment.

Usually a proteinaceous material is added to the emulsion to improve emulsion stability and binding. The proteinaceous material may be a vegetable or animal protein source; for example wheat gluten, soy flour, soy protein concentrates, soy protein isolates, egg proteins, whey, casein, etc. The exact choice will depend upon availability, cost and palatability. Usually about 5% to about 35% of the proteinaceous material is used.

If desired or required, fats may be added to the emulsion. Usually the amount of fat in the emulsion must be controlled to facilitate processing and to obtain an acceptable product. However, the meat material may well contain the desired amount of fats and hence adjustment may not be necessary. Typically at this stage the emulsion contains a maximum fat level of about 25% by weight. Conveniently, the amount of fat in the emulsion is in the range of about 5% to 15% by weight; more preferably about 7% to about 12% by weight. The mass ratio protein to fat in the emulsion is preferably about 1:1 to about 7:1. If added, the fats may be any suitable animal fats; for example tallow, or may be vegetable fats.

Additional ingredients such as sugars, salts, spices, seasonings, flavoring agents, minerals, and the like may also be added to the emulsion. The amount of additional ingredients used is preferably such that they make up about 1% to about 5% by weight of the formulated emulsion product.

Water may also be added to provide from about 45% to 80% by weight moisture in the emulsion. If sufficient moisture is present in the meat material, water need not be added.

Once mixed, the emulsion is preferably fed through a vacuum stuffer, or similar de-aeration apparatus, to de-aerate the emulsion. This removes air which may otherwise cause disruption of the formulated emulsion product and reduce its meat-like appearance.

The emulsion is then fed to an emulsion mill which subjects the emulsion to rapid mechanical heating and shearing. Any suitable emulsion mill may be

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used, for example the emulsion mill disclosed in US patent 5,132,137. Other suitable emulsion mills are commercially available under the trade name of Trigonal and may be obtained from Siefer Maschinenfabrik GmbH & Co KG, Bahnhofstrasse 114, Postfach 101008, Velbert 1, Germany.

5       The temperature of the emulsion is raised to the desired coagulation temperature in the emulsion mill in a few seconds. For example, the temperature may be raised to from about 100°C to about 120°C. Alternatively, the temperature may be raised to in the range of about 45°C to about 75°C as described in US patent 5,132,137. Usually the mechanical energy generated in  
10       the emulsion mill will be sufficient to heat the emulsion but this may be supplemented by the injection of superheated steam.

      The heated emulsion leaving the emulsion mill is then transferred to a holding tube. In the holding tube, the heated emulsion coagulates while moving slowly along the holding tube. The residence time of the heated emulsion in the  
15       holding tube is sufficient for the emulsion to have coagulated into a firm emulsion product upon reaching the exit of the holding tube.

      The firm emulsion product leaving the holding tube is then transferred to a cutter where it is cut into chunks of size suitable for use in a pet food. The chunks may be subjected to flaking if desired.

20       The gravy or sauce is produced from water, starch and suitable flavoring agents and should comprise about 20% to about 40% by weight of the mixture of solid pieces and gravy. The amount of starch used is sufficient to provide a gravy with a viscosity of about 300 to about 800 centipoise; especially about 400 centipoise. Up to about 8% by weight of starch may be used to obtain this  
25       viscosity. The starch is preferably such that its viscosity increasing properties break down during retorting of the canned pet food. These starches, which are commonly known as modified starches for filling retorted foods, are commercially available from Staley Manufacturing Company (2200 E. Eldorado Street, Decatur, Illinois 62525, USA) and National Starch and Chemical  
30       Company (10 Finderne Avenue, Bridgewater, New Jersey 08807).

      In place of, or in addition to, the starch, one or more suitable gums may be incorporated into the gravy. Suitable gums are kappa-carrageenan, locust bean gum, guar gum and xanthan gum.

## b) Preparation of the settable foodstuff:

When the substantially solid foodstuff is selected to be a gelled meat loaf, the settable foodstuff is a meat batter. The meat batter may be prepared by emulsifying a suitable meat material to produce a meat emulsion. The meat material may be any suitable meat source, for example as described above. Suitable gelling agents, for example gums such as kappa-carrageenan, locust bean gum, guar gum and xanthan gum may be added to the meat emulsion. Usually no more than about 2% by weight of gum is needed.

Additional ingredients such as sugars, salts, spices, seasonings, flavoring agents, minerals, and the like may also be added to the meat emulsion. The amount of additional ingredients used is preferably such that they make up about 0.25% to about 5% by weight of the meat batter.

Water may also be added the meat emulsion to provide from about 70% to about 85% by weight. If sufficient moisture is present in the meat material, water need not be added.

The meat emulsion is then heated to a temperature above about 65°C in a mixer-cooker. Steam may be injected into the meat batter if desired. The heated meat emulsion is then again emulsified to provide the meat batter and the meat batter maintained at a temperature above about 60°C until needed. At this stage, depending upon the canning process, the meat batter has a viscosity in the range of about 1800 to about 4000 centipoise. These viscosities may be obtained by suitably altering the amount or composition of the gum added to the meat batter.

Alternative, the substantially solid foodstuff may be cooked rice or noodles, or both. In this case, the settable foodstuff may be freshly cooked rice or noodles. Upon cooling, the freshly cooked rice or noodles form a substantially solid layer. If desired, suitable gelling or thickening agents, for example gums such as kappa-carrageenan, locust bean gum, guar gum and xanthan gum may be added to the rice or noodles. Usually no more than about 2% by weight of gelling or thickening agent is needed.

Additional ingredients such as sugars, salts, spices, seasonings, flavoring agents, minerals, and the like may also be added to the rice or noodles. The amount of additional ingredients used is preferably such that they make up about 0.25% to about 5% by weight of the settable foodstuff.

Alternative, the substantially solid foodstuff may be an aspic; for example an aspic which contains cooked vegetable pieces. The aspic may be prepared as

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is conventional. Additional ingredients such as sugars, salts, spices, seasonings, flavoring agents, minerals, and the like may also be added to aspic. The amount of additional ingredients used is preferably such that they make up about 0.25% to about 5% by weight of the aspic.

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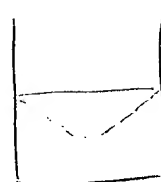
c) Canning:

The mixture of the solid food pieces and gravy and the settable foodstuff are then fed to suitable filling machines; one for filling the solid food pieces and  
10       gravy and one for filling the settable foodstuff. For filling the solid food pieces and gravy, a pocket filling is particularly suitable. Pocket fillers are commercially available; for example from Luthi Machinery and Engineering Co., Inc (1726 W. 180th Street, Gardena California, 90248, USA), Carruthers Equipment Company (1815 N. W. Warrenton Drive, Warrenton, Oregon 97146,  
15       USA) and Zilli & Bellini SPA (Via Benedetta, 85/A, 43100 Parma, Italy). Suitable filling machines for filling the settable foodstuff are commercially available from Hema USA Inc ( 426 W. Universal Circle, Sandy, Utah 84070, USA), PRC (2582 S. Tejon Street, Englewood, Colorado 80110, USA). During filling, the settable foodstuff should be maintained at a temperature or conditions  
20       to prevent gelling or setting.

A metered amount of the mixture of the solid food pieces and gravy is fed into each can entering the pocket filler in a defined layer comprising about 20% to about 80% of the volume or weight of the product. For example, the layer may make up about 30% to about 70% of the volume or weight of the product.

25       At this point the can may be spun about a vertical axis to cause the mixture of the solid food pieces and gravy to flow up the sides of the can and leave a substantially conical recess into its upper surface. If this is done, the mixture should have a viscosity in the range of about 2500 to about 4000 centipoise. Alternatively, the can may be fed directly to a separate filling machine. If this is  
30       done, the mixture should have a viscosity in the range of about 1800 to about 2500.

Once the cans reach the separate filling machine, a metered amount of the settable foodstuff is then fed onto the mixture of the solid food pieces and gravy. The can is then sealed. If the can was not spun prior to filling of the settable  
35       foodstuff, it is spun at this point. This spinning causes the mixture of the solid food pieces and gravy to flow up the sides of the can and leave a substantially



conical recess into its upper surface. The settable foodstuff fills the conical recess as it is formed. Due to the density and viscosity of the mixture of the solid food pieces and gravy and the density and viscosity of the settable foodstuff, clear and distinct layers are formed in the can despite the spinning. These layers remain clear and distinct during seaming of the cans. After it has cooled, the settable foodstuff will form a firm, substantially solid foodstuff.

The cans are then retorted under conditions sufficient to effect commercial sterilization in the normal manner. Typically the cans are retorted at a temperature of about 115°C to about 125°C for about 30 to 100 minutes. During the retorting operation, the starch in the gravy preferably breaks down such that the previously viscous gravy takes on the appearance of a thin, runny sauce.

The extent and size of the recess may be readily adjusted by adjusting the rotational speed of the cans during spinning and the length of time that they are spun. If spun sufficiently fast and long enough, especially if spun prior to filling of the settable foodstuff, the recess may extend entirely through the base layer to take on a frusto-conical shape.

The cans produced by the process contain a product which comprises a lower layer made up of solid pieces of food in a thin sauce and having a substantially conical recess; and an upper layer of a substantially solid foodstuff. The layers are clear and distinct and the product is visually attractive once removed from the can.

### Example 1

#### 25 a) Production of solid food pieces in gravy

Blocks of frozen meat made up of beef, pork, poultry, fish and meat by-products are cut into pieces of about 10 cm in size and the pieces are then ground in a meat grinder. The ground meat is transferred to a mixer in which it is heated to a temperature of about 0°C. After mixing, the ground meat is fed into an emulsifier in which it is emulsified and heated to a temperature of about 20°C. The meat emulsion is then transferred to a mixer. A blend of dry proteinaceous material made up of a mixture of wheat gluten, soy flour and soy protein concentrate is added. Additives in the form of vitamins, minerals, flavoring agents, sugars and salts are then added. At this stage, the emulsion is made up of about 77% by weight of meat materials, about 21% by weight of the

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proteinaceous material and about 2% additives. The fat content is about 10% by weight and the moisture content is about 55% by weight.

The emulsion, at a temperature of about 35°C, is then pumped to an emulsion mill in which it is rapidly heated up to a temperature of about 107°C.

5 The hot emulsion is ejected from the emulsion mill into a holding tube. The emulsion moves slowly through the holding tube such that it is sufficiently cooled and coagulated upon exiting the tube. The coagulated product leaving the holding tube is then cut into cubes of about 2 cm dimension. The chunks have a highly striated, meat like appearance. The chunks are then cooled and flaked to  
10 produce flakes of about 1 to about 2 cm size. The flakes are screened to remove small fragments.

A gravy is then prepared by mixing a modified starch, flavoring and coloring agents, and water. The gravy has a viscosity of about 400 centipoise. The mixture is heated to about 80°C and then blended with the flakes. The gravy  
15 provides about 34% by weight of the mixture of solid food pieces and gravy. The moisture content is about 65% by weight.

b) Production of meat batter

20 Blocks of frozen meat made up of beef, pork, poultry, fish and meat by-products are cut into pieces of about 10 cm in size and the pieces are then ground in a meat grinder. The ground meat is transferred to a mixer and heated. Vitamins, minerals, flavoring agents, salts and about 1% by weight of a gum mixture are added. The mixture is heated to about 75°C under mixing and  
25 maintained at this temperature. The meat batter has a viscosity of about 3000 centipoise.

c) Canning

30 The mixture of solid food pieces in gravy is transferred to a pocket filler obtained from Carruthers Equipment Company and filled into cans. The amount of the mixture of solid food pieces in gravy is selected to provide about 40% of the total product weight in the can. The cans are spun to cause the mixture to flow up the sides of the cans to just below the tops of the cans. The recess  
35 formed in the center of the mixture extends clear through to the base of the can.

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The cans are then transferred to a filling machine obtained from PRC. The remaining space in each can is filled with meat emulsion. During transfer to the filling machine, the mixture of solid food pieces and gravy retains its shape.

5 The cans are then seamed and retorted. A can is opened and turned out onto a plate. The product has a clearly defined lower layer made up of meat loaf topped by a layer of meat flakes in a thin sauce. The lower layer is frusto-conical in shape and projects to the upper surface of the upper layer.

### Example 2

10

A mixture of solid food pieces and gravy is produced as described in example 1. A meat batter is also produced as described in example 1 except that the meat batter has a viscosity of about 2000 centipoise.

15 The mixture of solid food pieces in gravy is transferred to a pocket filler obtained from Carruthers Equipment Company and filled into cans. The amount of the mixture of solid food pieces in gravy is selected to provide about 40% of the total product weight in the can.

The cans are then transferred to a filling machine obtained from PRC. The remaining space in each can is filled with meat emulsion.

20 The cans are then seamed and spun to cause the mixture of solid food pieces and gravy to flow up the sides of the cans and form a recess in the center of the mixture. The cans are then retorted. A can is opened and turned out onto a plate. The product has a clearly defined lower layer made up of meat loaf topped by a layer of meat flakes in a thin sauce. The lower layer includes a conical  
25 projection which extends into the upper layer.

### Example 3

30 The process of example 1 is repeated except that cooked rice is substituted for the flakes of formulated meat emulsion in the solid food pieces and gravy. A can of the product is opened and turned out onto a plate. The product has a clearly defined lower layer made up of meat loaf topped by a layer of rice in a thin sauce. The lower layer is frusto-conical in shape and projects to the upper surface of the upper layer.

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Example 4

5     The process of example 1 is repeated except that freshly cooked rice is used in place of the meat batter. A can of the product is opened and turned out onto a plate. The product has a clearly defined lower layer made up of cooked rice topped by a layer of meat flakes in a thin sauce. The lower layer is frusto-conical in shape and projects to the upper surface of the upper layer.



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Claims

1. A canned pet food product comprising:  
a base layer comprising solid food pieces in a gravy and having a  
5 substantially conical recess formed into its upper surface, the gravy comprising  
about 20% to about 40% by weight of the base layer; and  
an upper layer comprising a substantially solid foodstuff capable of  
supporting the base layer when the pet food product is inverted and filling the  
conical recess formed into the base layer, the substantially solid foodstuff  
10 comprising about 20% to about 80% by weight of the pet food product.
2. A product according to claim 1 in which the recess into the base layer  
extends entirely through the base layer to be substantially frusto-conical in shape.
- 15 3. A product according to claim 1 in which the solid food pieces in the base  
layer are a formulated emulsion product having the striated appearance of natural  
meat.
4. A product according to claim 3 in which the formulated emulsion product  
20 is in the form of flakes.
5. A product according to claim 1 in which the gravy comprises water and  
about 2% to about 8% by weight of a heat sensitive starch which undergoes a  
reduction in its viscosity increasing properties during heating.  
25
6. A product according to claim 1 in which the base layer has a moisture  
content of about 60% to about 70% by weight.
7. A product according to claim 1 in the substantially solid foodstuff is a  
30 gelled meat loaf, cooked rice, cooked noodles, or aspic, or mixtures thereof.
8. A product according to claim 1 in which the upper layer has a viscosity in  
the range of about 1800 to about 4000 centipoise during filing of the upper layer  
into the can.  
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9. A process for producing a canned pet food product having at least two layers, the process comprising:
- filling a base layer comprising solid food pieces in a gravy into a can, the gravy having a viscosity in the range of about 300 to about 800 centipoise and forming about 20% to about 40% by weight of the base layer;
- 5 filling an upper layer into the can, the upper layer comprising a settable foodstuff having a viscosity in the range of about 1800 to about 2500 centipoise and, upon cooling, forming a substantially solid foodstuff, the settable foodstuff comprising about 20% to about 80% by weight of upper and base layers;
- 10 sealing and spinning the can for causing the base layer to flow up the sides of the can and forming a substantially conical recess into the upper surface of the base layer; and
- retorting the sealed can.
- 15 10. A process for producing a canned pet food product having at least two layers, the process comprising:
- filling a base layer comprising solid food pieces in a gravy into a can, the gravy having a viscosity in the range of about 300 to about 800 centipoise and forming about 20% to about 40% of the base layer;
- 20 spinning the can about a vertical axis for causing the base layer to flow up the sides of the can and forming a substantially conical recess into the upper surface of the base layer;
- filling an upper layer into the can, the upper layer comprising a settable foodstuff having a viscosity in the range of about 2500 to about 4000 centipoise and, upon cooling, forming a substantially solid foodstuff, the settable foodstuff
- 25 comprising about 20% to about 80% by weight of upper and base layers;
- sealing the can; and
- retorting the sealed can.

# PATENT SPECIFICATION

(11)

1 327 351

DRAWINGS ATTACHED



1 327 351

- (21) Application No. 16496/72 (22) Filed 10 April 1972  
 (31) Convention Application No. 136 754 (32) Filed 23 April 1971 in  
 (33) United States of America (US)  
 (44) Complete Specification published 22 Aug. 1973  
 (51) International Classification A23K 1/10  
 (52) Index at acceptance  
 A2B J2 J3A3 J3A4 J5

## (54) PROCESS OF PRODUCING EGG-IN-MEAT PET FOOD

(71) We, THE QUAKER OATS COMPANY a Corporation organized and existing under the laws of the State of New Jersey United States of America, of, 617 West 5 Main Street, Barrington, Illinois, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a pet food of the hash type which contains eggs in the mixture. More specifically, this invention relates to an egg in meat pet food.

The present invention provides a packaged pet food comprising a center core of sterilized egg mixture, a surrounding medium which completely surrounds the center core, said surrounding medium comprising a sterilized ground meat mixture, and a container containing the sterilized ground meat mixture, said container being hermetically sealed.

The present invention also provides a process for producing an egg in meat pet food comprising partially filling a container with a ground meat mixture, inserting a tube into the ground meat mixture, passing an egg mixture through the tube until the container is filled while at all times maintaining a layer of the ground meat mixture between the egg mixture and the container, removing the tube from the container, sealing the container, and heating the sealed container to sterilize the ground meat mixture and egg mixture.

The nutritional requirements of a dog are based on several factors including the size of the dog and the environment in which he lives. Although most commercial dog foods provide the basic calorie need, many such products could be improved by inclusion of additional protein therein.

A high quality protein diet has been

found desirable for dogs. The use of eggs in their diet has long been advised by nutritionists for several reasons. Eggs contain an excellent balance of amino acids essential to growth and maintenance. Egg protein is helpful in providing the nitrogen equilibrium in the adult dog. It is assumed that egg protein supplies the indispensable amino acid in approximately the equilibrium amounts for the metabolic needs of the body. Therefore, there is a demonstrated advantage for providing a dog food containing significant quantities of eggs.

The concept of using eggs in dog food is not new. For instance, the idea is fairly well discussed in U.S. Patent No. 3,561,972 wherein citric acid is used to accomplish the blending of eggs with meat. We have found, however, that all of the known processes for producing an egg and meat pet food left something to be desired. Usually it is found that the egg either has some reaction with the standard can or else discolors when it comes in contact with the standard can. All known commercial processes for producing an egg and meat pet food product have attempted to overcome this problem by placing some additive in either the meat or egg to prevent discoloring. We have found that we can overcome this problem without the use of additives simply by maintaining a layer of meat between the egg and the container at all times.

It is an object of this invention to produce a process for producing an egg and meat pet food.

It is another object of this invention to produce a new and novel product of the egg and meat variety.

The objects of this invention are accomplished by a process for producing an egg and meat pet food comprising partially filling a container with a ground meat mixture, inserting a tube into the ground meat mixture, passing an egg mixture through the

[Price 25p]

tube until the container is filled while at all times maintaining a layer of ground meat mixture between the egg mixture and the container, removing the tube from the container, sealing the container, and heating the sealed container to sterilize the ground meat mixture and egg mixture.

The objects of this invention are further accomplished by the product comprising in combination a center core of a sterilized egg mixture, a surrounding medium which completely surrounds the center core, said surrounding medium comprising a sterilized ground meat mixture and a container containing the sterilized ground meat mixture, said container being hermetically sealed.

We have found that it is desirable in our process to fill a typical can about three-fourths of the way full with a proper meat mixture then insert a tube about one-fourth of the way from the bottom of the can and inject egg into the ground meat mixture while slowly pulling the tube out of the can until the container is full. At this point the ground meat mixture completely encloses the egg mixture and the can can be sealed and retorted to sterilize its contents.

This invention may be more fully described but should not be limited by the accompanying drawings wherein we have used Figure 1 to illustrate an empty can 11 sitting atop a platform 12 ready to be filled;

Figure 2 illustrates the same can being filled about three-fourths capacity with a ground meat product 13 from a standard filling device 14;

Figures 3 and 4 illustrate the same can approximately three-fourths of the way full as it passes down the processing line;

In Figure 5 the can has moved underneath a filling tube 15 and the platform 12 has been raised until the tube exit is in the mid portion of the ground meat 13. At this point an egg mixture 16 is injected into the ground meat.

In Figure 6 it is illustrated that the platform is lowered as the egg is injected causing the egg to fill the center portion of the ground meat mixture and thereby causing the ground meat mixture to rise to the top of the can;

In Figure 7 the egg supply tube has been removed and the can is shown in its returned position substantially filled with ground meat mixture which completely encircles the injected egg mixture; and

In Figure 8 a lid 17 has been placed on the can to hermetically seal it and the can is then passed to retorting.

The following example more clearly illustrates the process and product of our invention.

A ground meat mixture was prepared by

admixing 45 parts by weight water, 9 parts by weight ground bone, 5 parts by weight ground horsemeat, 5 parts by weight ground chicken, 10 parts by weight meat by-products (spleen, lungs, gullet) and typical vitamins and minerals commonly added to pet food. The mixture was thoroughly mixed and ground until it would pass through a 3/8 inch plate. The mixture was next heated until the meat therein was substantially cooked.

An egg mixture was prepared by admixing 5 parts by weight dried egg, 0.3 parts by weight, vegetable gum (Keltrol, Kelco Company, Chicago, Illinois), "Keltrol" is a Registered Trade Mark 15 parts by weight water. This mixture was slurried together at a temperature between 70°F. and 80°F. The mixtures were then conveyed to the appropriate portions of the apparatus as shown in the accompanying drawing. A can was filled about nine-tenths full with about 9 parts by weight of the ground meat mixture and a tube was inserted into the can and 1 part by weight of the egg mixture was inserted therethrough to fill the can. The can was then sealed and retorted at about 276°F. for three-fourths hours.

It is to be understood that the egg to ground meat ratio is left to the discretion of the processor, but we prefer a product having a major portion thereof of meat. It is also to be understood that any of the common meaty pet food mixtures may be used as the meat of this invention including prepared ground meat by itself. It is also to be understood that any of the commonly used egg mixtures may be used in this invention.

It is also to be understood that the times and temperatures used in the canning procedure as well as the sealing of the can are standard to the pet food industry and may be altered within standard commercial usage.

The process of this invention is new and unique and provides an extremely simple procedure for producing a new and unique product. The process utilizes a simple procedure to avoid the expense and irritation of having to supply costly additives to a product. The product is an extremely pleasing and nutritional product for pet food consumption.

#### WHAT WE CLAIM IS:—

1. A packaged pet food comprising a center core of a sterilized egg mixture, a surrounding medium which completely surrounds the center core, said surrounding medium comprising a sterilized ground meat mixture, and a container containing the sterilized ground meat mixture, said container being hermetically sealed.

2. A process for producing an egg in

- meat pet food comprising partially filling a container with a ground meat mixture, inserting a tube into the ground meat mixture, passing an egg mixture through the tube
- 5 until the container is filled while at all times maintaining a layer of the ground meat mixture between the egg mixture and the container, removing the tube from the container, sealing the container, and heating
- 10 the sealed container to sterilize the ground meat mixture and egg mixture.
3. A packaged pet food according to claim 1 substantially as herein described.
4. A process according to claim 2 for producing an egg in meat pet food substan- 15 tially as herein described.

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Printed for Her Majesty's Stationery Office by The Tweeddale Press Ltd., Berwick-upon-Tweed, 1973.  
Published at the Patent Office, 25 Southampton Buildings, London WC2A 1AY, from which copies may be obtained.

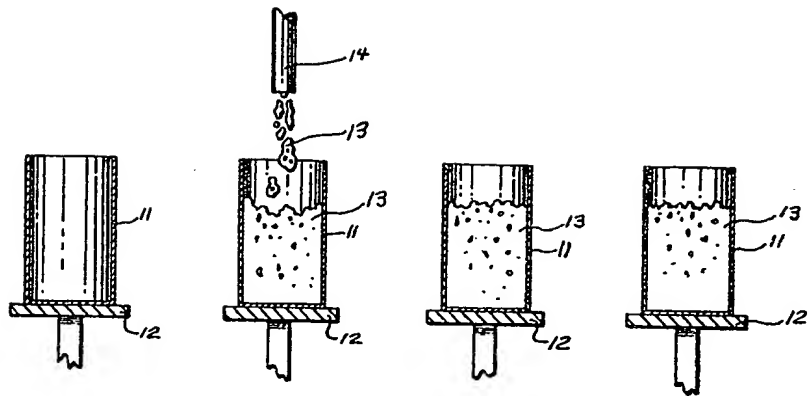


FIG. 1

FIG. 2

FIG. 3

FIG. 4

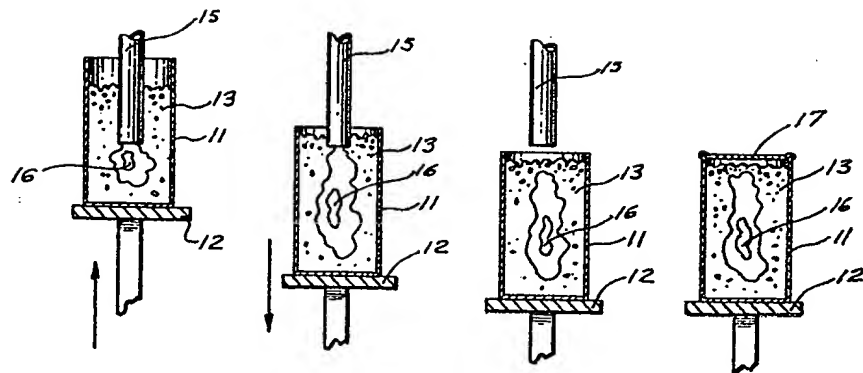


FIG. 5

FIG. 6

FIG. 7

FIG. 8

(EP 0258037)  
(MAR 1988)

GB 94125  
MAR 1988

(12) UK Patent Application (19) GB (11) 2 194 125 (13) A

(43) Application published 2 Mar 1988

(21) Application No 8620598

(22) Date of filing 26 Aug 1986

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A23L 1/31

(52) Domestic classification (Edition J):

A2B 317 341 399 KP9

(56) Documents cited

GB 1587667

GB 1367042

US 4166138

GB 1441342

GB 1303400

US 3765902

GB 1436583

US 4313967

US 3615652

(58) Field of search

A2B

Selected US specifications from IPC sub-class A23L

(54) Co-extruded semi-moist food product

(57) A co-extruded semi-moist food product is provided which is especially suited for use as a dog treat. The product comprises an inner core which is at least partially covered by at least one distinguishable layer e.g. one which has a different colour, texture or composition.

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## SPECIFICATION

## Co-extruded semi-moist food product

- 5 This invention relates to a co-extruded semi-moist food product and, in particular, to a co-extruded semi moist pet food product which is especially suited for use as a dog treat. Pet foods intended for consumption by dogs or cats are currently manufactured in three distinct types, that is, canned foods, dry or semi-dry foods and semi-moist or intermediate moisture products. 5
- 10 Canned foods consist essentially of meat or mixtures of meat and cereal having a meat-like texture and have a high moisture content, typically in the range of 70-80%. Such canned foods generally have a high animal acceptance, probably because of their natural moisture and high meat content which produce an attractive texture, consistency and aroma. However, the high moisture content of such products requires that they be heat sterilised in hermetically sealed 10
- 15 containers, such as cans, to inhibit spoilage and thus provide a reasonably long shelf-life. Heat sterilisation of this type is a costly process and thus increases the cost of the product. Moreover, since such products readily support the growth of microbiological organisms in non-sterile conditions, it is essential that the content of such a can be consumed quickly or stored under refrigeration once it has been opened otherwise the product will deteriorate very rapidly. 15
- 20 Dry or semi-dry foods consist of mixtures of meat and/or meat meal and cereals and have a low moisture content, typically below 12%, and consequently a hard and crunchy texture. Such foods generally have a very high nutritional and calorific value and are thus capable of providing a complete balanced diet for the animal. Moreover, they have a good storage life because of their low moisture content and can thus be packed in relatively inexpensive packaging, such as 20
- 25 paper or cardboard containers. On the other hand, such foods generally have a low animal palatability because of their hard, dry texture. Indeed, such foods are often completely rejected unless suitable liquids are added prior to consumption and, in some cases, even liquid addition does not increase palatability because it causes disintegration of the product into a slushy, unappealing condition which may still be rejected by the animal. Attempts have been made to 25
- 30 increase the palatability of such dry and semi-dry products by coating them with a meat slurry. However, although this technique has improved the animal acceptance of such products, the texture of such coated products remains hard and therefore far from fully acceptable. 30
- 35 Semi-moist or intermediate moisture products consist of mixtures of meat, protein meals and cereals and have a moisture content in the range of 15-35% which gives such products a soft, moist texture similar to that of natural cooked meat. These products generally have a high calorific density and good nutritional value. Preservation of such products is achieved by the addition of humectants, such as sugars and polyhydric alcohols particularly propylene glycol, which bind water and thus reduce the water activity of the products to a level at which bacteria 35
- 40 are unable to grow, and an antimycotic agent, such as potassium sorbate which inhibits the growth of yeasts and moulds. The use of propylene glycol as a humectant is particularly beneficial in that propylene glycol also has antimycotic properties and is very effective in killing many viruses including influenza, polio and FMD viruses. Moreover, it has been found that at the pH and water activity level of such semi-moist products, the propylene glycol acts synergistically with the potassium sorbate to provide a bacteriostatic effect. However, although the animal 40
- 45 acceptance of such semi-moist products is higher than that of dry foods, the added preservatives are not palatable to some animals. 45
- 50 In addition to the three categories outlined above, pet foods, particularly dog foods, can be divided into two further subclasses, that is, foods designed as main meals and foods designed as treats, that is, snacks that can be given to a pet between main meals, for instance, as a reward. Main meal foods have been produced in all three of the types described above. 50
- 55 However, traditionally, treats have been manufactured mainly as dry products, such as biscuits, or chocolate drops. Some semi-moist treats have been produced but these have not made any significant impact on the market. 55
- 60 Dry products, as discussed above, have a low animal palatability and chocolate drops, although having a high animal acceptance, have a low nutritional value which may deter health-conscious pet-owners from giving such items to their pet. Clearly, canned goods are unsuitable for use as treats because they are messy to handle, due to their high moisture content, and must be consumed quickly once the can has been opened, due to the storage problems discussed above, hence they do not lend themselves to distribution in small quantities. Semi-moist products are clearly easier to handle and store than canned foods. However, as discussed 60
- 65 above, known semi-moist foods are not palatable to some animals because these animals can readily detect the preservatives in the product. 65
- It is thus an object of the present invention to provide a highly palatable pet food which may be used as a treat, has good storage and handling characteristics and has a high nutritional value.



↓ According to the invention there is therefore provided a co-extruded semi-moist food product comprising an inner core at least partially covered by at least one distinguishable layer.

It is preferred that the inner core be rich in vitamins and minerals, preferably containing sufficient vitamins and minerals to satisfy the requirements for adult maintenance of the consumer. When the consumer is to be a dog, it is preferred that the inner core contains 0.2-0.6% by weight of a suitable vitamin and mineral mix. It is also preferred that the inner core has a soft texture and is of a contrasting colour with respect to the or each covering layer.

Preferably, the food product has an outer layer containing 35-55% by weight of meat or meat by-products and, more preferably, 50-55%. It is also preferred that the outer layer has a meat-like surface texture and a fibrous overall texture and is a dark red-brown colour.

In its most preferred form the food product comprises an inner core and a single outer layer the ratio by weight of the inner core to the outer layer preferably being 2:3. Preferably, the inner core and outer layer contain the following ingredients on a dry weight basis:

	<u>% of Inner core</u>	<u>% of Outer core</u>	
Meat and meat by-products:	20 - 35%	35 - 55%	
20 Farinaceous products:	40 - 55%	15 - 35%	20
Edible oils:	2 - 7%	2 - 7%	

It is also preferred that the edible oils are vegetable oils.

25 Preferably, the food product further includes 15-25% by weight of the whole product of at least one humectant which is preferably selected from sugar, salt and propylene glycol. It is also preferred that the food product further includes 0.2-0.5% by weight of the whole product of an antimycotic agent, preferably potassium sorbate.

It is further preferred that the food product be in the form of a cylinder or flattened cylinder and have a moisture content in the range of 15-25% by weight or, more preferably, 18-22% by weight.

According to the invention there is also provided a method of manufacturing a food product of the type described above which includes the step of co-extruding the inner core and the or each layer.

35 Some embodiments of the present invention are illustrated in the following examples. All percentages are by weight unless otherwise specified.

EXAMPLE 1Ingredients

5	<u>Inner Core</u>	<u>% of Inner Core</u>	5	
	Meat and meat by-products	25.00		
	Farinaceous products	47.00		
10	Edible Oils	5.00	10	
	Humectants	19.80		
	Potassium sorbate	0.30		
15	Glycerol	2.00	15	
	Colourings	0.50		
	Vitamins	0.20		
20	Minerals	0.20	20	
	<u>Outer Layer</u>	<u>% of Outer Layer</u>		
25	Meat and meat by-products	35.00	25	
	Farinaceous products	34.05		
	Edible Oils	5.00		
30	Humectants	19.80	30	
	Potassium sorbate	0.30		
	Glycerol	2.00		
35	Additional fibre	0.50	35	
	Casein	3.00		
	Colourings	0.15		
40	Flavourings	0.20	40	
45	<p>The meat intended for the inner core was taken in a frozen state and subjected to pre-breaking before being passed through a Laska mincer fitted with a 5mm plate. The minced meat was then transferred to a Wolf King mixer/mincer fitted with a 3mm plate where it was blended with the other ingredients to form a dough and then minced. The ingredients of the outer layer were treated in an exactly similar way to form a second minced dough and the two doughs were then fed into a co-extruder and extruded onto a moving belt in the form of a strip having a width of 4cm and a depth of 1cm. The strip was baked by passing it on the belt through a tunnel oven at temperatures in the order of 160° to 220°C and then cooled. The cooled strip was then cut into smaller strips of one metre in length using a guillotine and the cut strips collected and slit into 1cm long pieces using rotary knives. The pieces were then packaged in units of 150g containing about twenty-five pieces for retail as a dog treat.</p>			45
50	<p>The finished product had a moisture content of 20% and consisted of an off-white core with a soft texture encased in a tubular, dark red-brown outer layer having a rippled surface and a fibrous texture similar to that of natural cooked meat.</p>			50
55				55

EXAMPLE 2Ingredients

5	<u>Inner Core</u>	<u>% of Inner Core</u>	5
	Meat and meat by-products	25.00	
10	Farinaceous products	47.00	10
	Edible Oils	5.00	
	Humectants	19.80	
15	Potassium sorbate	0.30	15
	Glycerol	2.00	
	Colourings	0.50	
20	Vitamins	0.20	20
	Minerals	0.20	
25	<u>Outer Layer</u>	<u>% of Outer Layer</u>	25
	Meat and meat by-products	50.00	
	Farinaceous products	21.05	
30	Edible Oils	3.00	30
	Humectants	19.80	
	Potassium sorbate	0.30	
35	Glycerol	2.00	35
	Additional fibre	0.50	
	Casein	3.00	
40	Colourings	0.15	40
	Flavourings	0.20	
45	The procedure of Example 1 was repeated using the above ingredients except that the cooled strip was cut into 8cm long bars weighing 40-45g each which were then individually packaged for retail as a dog treat.		45
	The final product had a moisture content of 20% and consisted of an off-white core with a soft texture encased in a tubular, dark red-brown outer layer having a rippled, slightly sticky surface and a fibrous texture.		
50			50

EXAMPLE 3Ingredients

5	<u>Inner Core</u>	<u>% of Inner Core</u>	5
	Meat and meat by-products	25.00	
	Farinaceous products	47.00	
10	Edible Oils	5.00	10
	Humectants	19.80	
	Potassium sorbate	0.30	
15	Glycerol	2.00	15
	Colourings	0.50	
	Vitamins	0.20	
20	Minerals	0.20	20
	<u>Outer Layer</u>	<u>% of Outer Layer</u>	
25	Meat and meat by-products	50.00	25
	Farinaceous products	19.67	
	Edible Oils	5.00	
30	Humectants	19.80	30
	Potassium sorbate	0.30	
	Glycerol	2.00	
35	Additional fibre	0.45	35
	Casein	2.33	
	Colourings	0.15	
40	Flavourings	0.20	40
	Raising Agent	0.10	
45	The procedure of Example 1 was repeated using the above ingredients.		
	The final product had a moisture content of 20% and consisted of an off-white core with a soft texture encased in a tubular, dark red-brown outer layer having a rippled surface, fibrous texture and meaty aroma.		
50	In the above Examples, the term "meat" is used not only to refer to the flesh of cattle, swine and sheep but also to the flesh of other mammals, poultry and fish. The term "meat by-products" refers to those non-rendered parts of the carcasses of slaughtered animals such as liver, kidney, heart, spleen, tongue, trimmings, lungs and skins and meat meals made from, for instance, ground bones, tendons and the like.		
55	The term "farinaceous products" is used to refer to foodstuffs containing a high proportion of starch and/or starch-like materials such as cereal grains and meals or flours obtained by grinding cereal grains such as corn, oats, wheat, barley, maize, and rice. It also includes some leguminous plants such as soybeans, navy beans and the like and their derivatives such as soya flour.		
60	The "edible oils" may be vegetable oils such as those obtained from soybeans, sunflower seeds, safflower seeds, cotton seed, rape seed or linseed, or may be derived from animal fats. Vegetable oils are preferred because their composition helps to balance the fatty acids present in the final product. Also, many vegetable oils contain linoleic acid which is important for the maintenance of a glossy coat for dogs.		
65	The term "humectants" is used to describe compounds which possess the ability to bind water and thus reduce the water activity of the final product to a level at which bacteria are unable to grow. Examples of such compounds include sugar, salt and polyhydric alcohols, such		

as propylene glycol. The use of propylene glycol is particularly advantageous because, as previously discussed, it acts synergistically with the antimycotic agent potassium sorbate to provide a bacteriostatic effect.

Glycerol may be included in both the inner core and outer layer ingredients because it has the dual effect of improving the texture of the final product and aiding extrusion. Additional fibre, for instance, in the form of a cellulose derivative, may be added to the outer layer to increase the fibrosity of that layer and thus produce a more meat-like texture. 5

To ensure that the final product supplies a complete and nutritionally balanced diet, vitamins and minerals are added to the inner core and casein to the outer layer. Ideally, minerals and vitamins should be added in a quantity sufficient to meet the requirements for adult maintenance of the animal for which the product is intended. Casein, which is a protein obtained from milk, is added because it contains different amino acids to those found in farinaceous products and thus enables a correctly balanced protein profile to be obtained. 10

Normal food additives such as colourings and flavourings may also be added to increase the palatability of the final product. Suitable colourings include titanium dioxide and iron oxide. In some cases, it may also be desirable to add a raising agent such as sodium or ammonium bicarbonate. 15

Comparative palatability tests were also carried out between two-layer products of the present invention, produced according to Example 1 and a leading conventional meat based dog treat known to have high palatability. 20

In these tests, thirty-eight dogs, comprising twenty-six West Highland White Terriers, seven Cairn Terriers, four Dachshunds and one Labrador, were offered a conventional treat and a treat according to the present invention and the first eaten was recorded.

A total of forty-eight choice tests were carried out with ten dogs undertaking the choice on two separate occasions. On forty occasions the treat of the present invention was eaten first, on six occasions the conventional treat was eaten first and on two occasions both treats were refused. 25

Thus, it would appear that the products of the present invention have a high palatability and are greatly preferred by dogs to the conventional treats. Unlike conventional semi-moist products, the dogs did not seem to be deterred by the presence of the necessary preservatives and it is thought that this is because the smell of the preservatives is disguised by the relatively high concentration of meat and meat by-products in the outer layer. 30

It will of course be understood that the present invention has been described above purely by way of example, and modifications of detail can be made within the scope of the invention. For instance, although the present invention has been specifically described in the context of pet foods, particularly dog treats, and is especially suited for such use, it will of course be understood that the food products of the present invention may also be formulated for human consumption. 35

#### 40 CLAIMS

1. A co-extruded semi-moist food-product comprising an inner core at least partially covered by at least one distinguishable layer.
2. A food product according to claim 1 in which the inner core contains 0.2—0.6% by weight of a vitamin and mineral mix.
3. A food product according to claim 1 or claim 2 in which the inner core has a soft texture.
4. A food product according to any preceding claim in which the inner core is of a contrasting colour with respect to the or each layer.
5. A food product according to any preceding claim which has an outer layer containing 35-55% by weight of meat or meat by-products.
6. A food product according to claim 5 in which the outer layer contains 50-55% by weight of meat or meat by-products.
7. A food product according to claim 5 or claim 6 in which the outer layer has a meat-like surface texture.
8. A food product according to any one of claims 5, 6 and 7 in which the outer layer has a fibrous texture.
9. A food product according to any one of claims 5 to 8 in which the outer layer is a dark red-brown colour.
10. A food product according to any preceding claim which comprises an inner core and a single outer layer.
11. A food product according to claim 10 in which the ratio by weight of the inner core to the outer layer is 2:3.
12. A food product according to claim 10 or claim 11 in which the inner core and outer layer contain the following ingredients on a dry weight basis: 60

	<u>% of Inner core</u>	<u>% of Outer core</u>	
5	Meat and meat by-products: 20 - 35%	35 - 55%	5
	Farinaceous products: 40 - 55%	15 - 35%	
	Edible oils: 2 - 7%	2 - 7%	
10			10
	13. A food product according to claim 12 in which the edible oils are vegetable oils.		
	14. A food product according to claim 12 or claim 13 which further includes 15-25% by weight of the whole product of at least one humectant.		
	15. A food product according to claim 14 in which the or each humectant is selected from		15
15	sugar, salt and propylene glycol.		
	16. A food product according to any one of claims 12 to 15 which further includes 0.2-0.5% by weight of the whole product of an antimycotic agent.		
	17. A food product according to claim 16 in which the antimycotic agent is potassium sorbate.		
20	18. A food product according to any preceding claim in the form of a cylinder or flattened cylinder.		20
	19. A food product according to any preceding claim which has a moisture content in the range of 15-25% by weight.		
	20. A food product according to claim 19 in which the moisture content is 20-22% by weight.		25
25	21. A method of manufacturing a food product according to any preceding claim which includes the step of co-extruding the inner core and the or each layer.		
	22. A food product substantially as hereinbefore described and with reference to Examples 1, 2 and 3.		
30	23. A method of manufacturing a food product substantially as hereinbefore described and with reference to Examples 1, 2 and 3.		30

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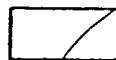
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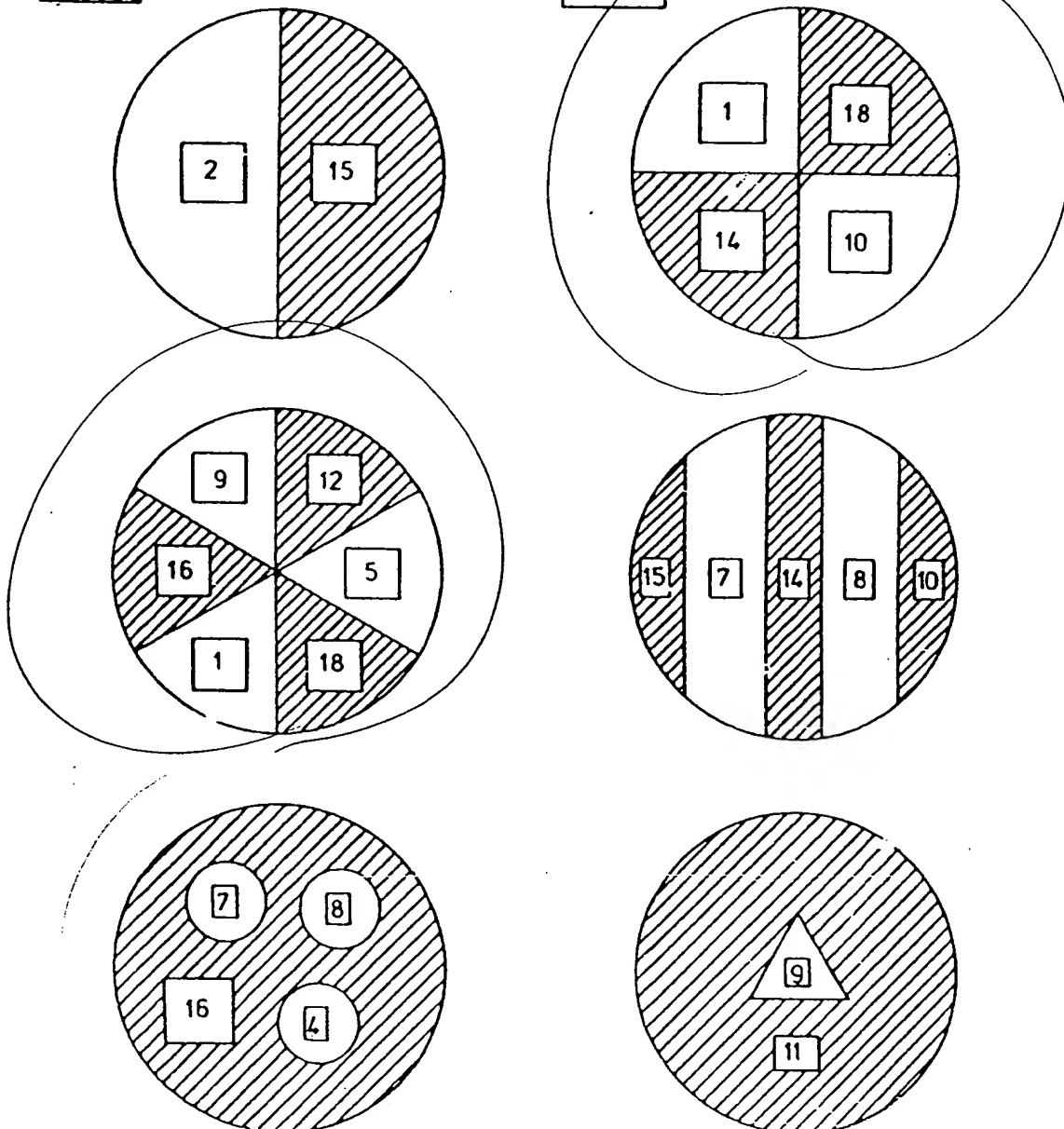
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Fat-free gel



Anhydrous cream



# PATENT SPECIFICATION

(11) 1 486 634

1 486 634

- (21) Application No. 44985/74 (22) Filed 17 Oct. 1974  
 (31) Convention Application No. 2 352 266  
 (32) Filed 18 Oct. 1973 in  
 (33) Fed. Rep. of Germany (DT)  
 (44) Complete Specification published 21 Sept. 1977  
 (51) INT CL<sup>7</sup> A61K 7/40  
 (52) Index at acceptance A5B 771



## (54) PACKAGES CONTAINING TWO OR MORE SKIN-CARE AGENTS IN CONTACT

(71) We, HENKEL & CIE. GMBH., a German Company, of 67 Henkelstrasse, Duesseldorf-Holthausen 4000, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a skin-care preparation comprising fat-free aqueous gels and anhydrous fatty creams in contact in one packaging container.

It is already known to use both anhydrous fatty creams and also fat-free aqueous gels as skin-care agents in special limited spheres of application. The anhydrous fatty creams which are here concerned are those agents for the care and protection of the skin which are particularly suitable for persons having extremely dry skin. They can, moreover, be used generally to afford protection against the influences of the weather, which severely tax the skin, such as wind, rain, snow; the effect of strong sunshine; and long bathing in fresh or salt water. A further sphere of application for anhydrous fatty creams is their use as night creams and in the care of severely taxed rough areas of skin, such as for example hands, elbows and heels. By means of special additions, such as substances which absorb ultra-violet rays, moisture agents or other additives, there can be produced on this basis protective agents against the sun, moisturising creams or special creams having a particular effect. Creams of this type rapidly melt on the skin and can therefore be spread easily in a thin and even layer.

The fat-free aqueous gels are also valued as skin-care agents which can be used in special spheres of application. The substances here concerned are chiefly gels based on tragacanth, gelatine, alginates, polyacrylic acid in combination with glycerine and special additives. They are particularly suitable as protective agents during the day and as a foundation for make-up when the facial skin is extremely greasy, and also in the care of roughened hands. At the same time they can be provided with special additives in order to obtain special creams having a particular effect. The fat-free aqueous gels can also be spread easily on the skin and have a refreshing and cooling effect thereon.

Since the consumers have a wide range of skin types and the skin-care agents are intended to serve the most diverse purposes, it has hitherto been necessary to use various mixtures of the above ingredients and to keep them in numerous individual containers. Such mixtures however require an emulsifying agent if they are to remain stable in storage. It has been found that such emulsifiers often give rise to allergies in persons with sensitive skin.

The present invention has for its object the provision of a skin-care combination, which permits the consumer himself to prepare the cream suited to his skin type, the purpose and the weather, which cream is inexpensive and easily accessible.

According to the present invention there is provided a skin-care preparation comprising at least one fat-free aqueous gel and at least one anhydrous fatty cream, the gel and the cream being present in a packaging container separately and without partitioning walls between said gel and cream, the gel and the cream being independently accessible in and separately removable from the container and in which the disposition of the gel and the cream in the container enable the gel and the cream to be simultaneously removed from the container.



Substances concerned in the case of the fat-free aqueous gels, on which the combined skin-care agent is based, are usually preparations based on thickeners, such as for example tragacanth, gelatine, alginates, agar-agar, methyl cellulose, carboxymethyl cellulose, polyacrylic acid, colloidal silicic acid, multivalent alcohols such as glycerine, propylene glycol, sorbitol, special additives, such as moisturising agents, extracts of herbs, preservatives, opacifiers, colouring substances and perfumes.

The anhydrous fatty creams on which the combined skin-care agent is based, are usually preparations based on natural fats, oils, waxes, Vaseline (Registered Trade Mark), paraffins, fatty alcohols, metallic salts of long-chained fatty acids, special additives, such as substances which absorb ultra-violet rays, moisturising agents, preservatives, opacifiers, colouring substances and scented oils.

Since neither product is an emulsion, it is not necessary to use emulsifying agents, so that the skin-care preparation according to the invention is particularly suitable for persons having sensitive skin, who tend towards allergies in respect of individual emulsifying agents.

The skin-care preparation according to the invention enables the consumer himself to prepare the optimum cream for his skin-type, the respective purpose and the weather, by removing portions of the anhydrous fatty cream and the fat-free aqueous gel from the container and mixing same, or, if need be, of using the anhydrous fatty cream or the fat-free aqueous gel alone. The mixing of the two basic creams in the desired ratio can be effected quickly on the back of the hand or in the lid of the container. The skin-care agent thus produced is quite unexpectedly comparable to an emulsion of creamy consistency with regard to its cosmetic properties, its distributability and its capacity for penetration. The components of the skin-care preparation of the invention do not become intermingled in the container even when kept for quite long periods.

The appearance of the two components of the combined skin-care agent can vary considerably, thereby providing a differentiation of the individual components in accordance with its nature and further substances contained therein e.g. substances for filtering ultra-violet rays. The anhydrous fatty cream without further additives is slightly cloudy, almost transparent. The addition of white pigments, e.g. titanium dioxide, zinc oxide, magnesium oxide or metallic soaps, preferably metal stearates or palmitates, gives rise to a white cream. A white colouring is also obtained by the addition of an opacifier, preferably a copolymer based on polystyrene. A coloured, vitreous cream is obtained by the sole addition of an oil-soluble colouring substance. The general addition of oil-soluble colouring substances with opacifiers, colouring pigments, gold-, silver- or colouring gloss pigments produces a wide range of variations in colour. The same variety of appearance from the clear transparent gel to the coloured gel with gloss effects can be achieved in the case of the fat-free gel, wherein water-soluble colouring substances are used instead of oil-soluble colouring substances.

The packaging containers which are provided, preferably transparent glass or plastic containers in the form of a jar or a pot, are filled with the two types of component in various arrangements. Various possibilities for arranging them can be seen in the accompanying drawings.

The filling can be effected in such a manner that either before or during the filling a partitioning member is inserted into the jar, and is removed on completion of filling. This can be readily effected after passing through a cooling or normal path, since both products are thixotropic and filling is effected at approximately 30 to 35°C. However, the two products can each be supplied, without an insertion from one or several nozzles to the jars, during which process different arrangements and irregular patterns are possible. It is also possible first to half fill the pot with one cream and then to insert the other cream in the centre from a nozzle which is lowered to the bottom of the pot and then slowly raised during filling. In this way a substantially round ray-shaped core is produced in the centre.

#### Example.

The following examples of anhydrous fatty creams and fat-free aqueous gels may be used in the skin-care preparation of the invention, being filled into containers as indicated in the accompanying drawings.

*Slightly cloudy, almost transparent, anhydrous fatty cream.  
(Cream No. 1).*

myristyl alcohol	2.0 parts by weight
cetyl alcohol	5.0 "
microcrystalline paraffin-hydrocarbons	20.0 "
liquid paraffin	70.5 "
triglyceride of 12-hydroxystearic acid	2.0 "
Scented oil	0.5 "

*White anhydrous fatty cream.  
(Cream No. 2).*

myristyl alcohol	2.0 parts by weight
cetyl alcohol	4.0 "
microcrystalline paraffin-hydrocarbons	20.0 "
liquid paraffin	70.7 "
colloidal silicic acid	2.0 "
titanium dioxide	1.0 "
scented oil	0.3 "

*Various white anhydrous fatty creams.*

	Cream No.				
	3	4	5	6	
Vaseline (Registered Trade Mark)	10.0	10.0	10.0	—	parts by weight
Polyethylene wax	—	—	—	10.0	"
Hard Paraffin	20.0	15.0	15.0	—	"
Liquid paraffin	49.5	52.5	50.4	73.5	"
Ethyleneglycolmono- stearate	—	—	5.0	—	"
Isopropylmyristate	5.0	—	—	5.0	"
2-octyldodecanol	—	5.0	10.0	—	"
Triglyceride of middle- chain fatty acids C <sub>8</sub> —C <sub>12</sub>	5.0	5.0	—	—	"
Stearylalcohol	4.0	5.0	—	5.0	"
Cetyl alcohol	—	—	4.0	3.0	"
Aluminium stearate	2.0	—	—	—	"
Colloidal silicic acid	—	—	—	2.0	"
Titanium dioxide	1.0	0.5	—	1.0	"

*Various white anhydrous fatty creams.*

		Cream No.			
		3	4	5	6
5	Zinc oxide	3.0	4.0	—	— "
	Zinc stearate	—	3.0	5.0	— "
	Perfume	0.5	—	0.6	0.5 "

*Coloured anhydrous fatty creams.*

		Cream No.		
		7	8	9
10	Myristyl alcohol	2.0	2.0	2.0 parts by weight
	Cetyl alcohol	4.0	4.0	4.0 "
	Microcrystalline paraffin-hydrocarbons	20.0	20.0	20.0 "
	Liquid paraffin	70.3	65.4	69.5 "
15	Hardened ricinoleic acid	2.0	—	— "
	Aluminium stearate	—	2.0	— "
	Colloidal silicic acid	—	—	2.0 "
	Titanium dioxide	0.7	1.0	0.5 "
20	Sico-fat blue 50401 N = C-ext. blue 12, 0.2% in liquid paraffin	0.6	—	— "
	Sico-fat red = C-red 2 0.05% in liquid paraffin	—	5.0	— "
25	Gloss pigment of the iriodine type	—	—	1.5 "
	Scented oil	0.4	0.6	0.5 "

*Anhydrous sun-protection cream.  
(Cream No. 10).*

30	Myristyl alcohol	2.0 parts by weight
	Cetyl alcohol	4.0 "
	Microcrystalline paraffin-hydrocarbons	20.0 "
	Liquid paraffin	68.5 "
35	Triglyceride of 12-hydroxystearic acid	2.0 "
	Titanium dioxide	1.0 "
	Ethylhexyl-p-methoxy-cinnamic acid ester	2.0 "
	scented oil	0.5 "

*Fat-free aqueous gels having herb extracts.*

	Gel No. 11	12	13	
5	Carboxyvinylpolymer Car- bopol 940 [Registered Trade Mark]	0.6	—	— parts by weight
	Gelatine	—	4.0	— "
	Colloidal silicic acid	—	—	10.0 "
	Glycerine	8.0	15.0	40.0 "
10	Sorbitol	—	—	30.0 "
	Ethanol	—	3.0	— "
	Triethanolamine	0.6	—	— "
	Herb extracts	1.0	2.0	5.0 "
15	Ethoxylated partial glycerides of fatty acids C <sub>8</sub> —C <sub>12</sub>	—	1.0	— "
20	Opacifier based on styrene copolymer SC 9142 (BASF) [Regis- tered Trade Mark]	—	0.4	— "
	L-blue Z 5000 = C-blue 20, 1% aqueous solution	0.2	0.3	0.25 "
25	40% suspension of zinc stearate	1.0	—	0.5 "
	Preservative	0.2	0.2	0.2 "
	Scented oil	0.5	0.5	0.5 "
	Water	87.9	73.6	13.55 "

*Fat-free aqueous gels of various colours.*

	Gel No. 14	15	16	17	
30	Carboxyvinylcopolymer Car- bopol 940 [Registered Trade Mark]	0.8	—	—	— parts by weight
35	Carboxymethylcellulose	—	5.0	—	— "
	Methylcellulose	—	—	—	2.5 "
	Sodium alginate	—	—	2.0	— "
	Glycerine	—	10.0	10.0	— "
	1,2-propylene glycol	5.0	—	—	5.0 "
40	Sorbitol	—	—	5.0	— "

*Fat-free aqueous gels of various colours.*

		Gel No. 14	15	16	17	
	Ethanol	5.0	—	5.0	—	"
5	Triethanolamine	0.8	—	—	—	"
	Moisturising agent Hydroviton [Registered Trade Mark]	0.5	1.0	—	2.0	"
10	Ethoxylated partial glycerides of fatty acids C <sub>8</sub> —C <sub>12</sub>	1.0	—	2.0	0.5	"
15	Opacifier based on styrene copolymer SC 9142 BASF [Registered Trade Mark]	0.5	—	—	—	"
	Lemon yellow Z 1100 = C-yellow 11 10% aqueous solution	0.8	—	0.6	—	"
20	L-red Z 3000 = C-red 49 5% aqueous solution	—	0.2	—	0.4	"
	Gloss pigment of the iriodine type	—	1.0	1.5	—	"
	Preservative	0.2	0.2	0.2	0.2	"
	Scented oil	0.5	0.5	0.5	0.5	"
25	Water	84.9	82.1	73.2	88.9	"

*Fat-free aqueous sun-protection gel.  
(Gel. No. 18).*

	Carboxylvinylpolymer, Carbopol 940 [Registered Trade Mark]	0.8 parts by weight	
30	Glycerine	5.0	"
	Triethanolamine	1.5	"
	Benzimidazole sulphonic acid	2.0	"
	Polyethyleneglycol MG 400	1.0	"
35	Opacifier based on styrene copolymer SC 9142 (BASF) [Registered Trade Mark]	0.3	"
	L-red Z 3000 = C-red 49 5% aqueous solution	0.3	"
	Preservative	0.2	"
	Scented oil	0.5	"
	Water	88.4	"

40

Transparent plastic containers may be filled with the aforementioned anhydrous fatty creams and fat-free aqueous gels in the arrangements shown in the

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7  
accompanying drawing. The numbers in the individual sectors in the drawing indicate the number of the cream or gel used. The consumer then has the opportunity of himself mixing the components to form the skin-care preparation which is suited to his skin-type and to the purpose for which it is used.

5 WHAT WE CLAIM IS:—

1. A skin-care preparation comprising at least one fat-free aqueous gel and at least one anhydrous fatty cream, the gel and the cream being present in a packaging container separately and without partitioning walls between said gel and cream, the gel and the cream being independently accessible in and separately removable from the container and in which the disposition of the gel and the cream in the container enable the gel and the cream to be simultaneously removed from the container. 5 10

2. A skin-care preparation as claimed in claim 1, in which the packaging container is a transparent glass or plastic container.

3. A skin-care preparation as claimed in any of the preceding claims, in which the or each fat-free gel and/or the or each anhydrous fatty cream contain colouring substances and/or pigments and/or other known additives for cosmetic preparations with the exception of emulsifying agents. 15

4. A skin-care preparation as claimed in claim 1 substantially as hereinbefore described in the Example. 20

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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>5</sup> : <b>B65D 35/24</b></p>	<p><b>A1</b></p>	<p>(11) International Publication Number: <b>WO 94/26606</b></p> <p>(43) International Publication Date: 24 November 1994 (24.11.94)</p>
<p>(21) International Application Number: <b>PCT/US94/05145</b></p> <p>(22) International Filing Date: 13 May 1994 (13.05.94)</p> <p>(30) Priority Data: 08/063,202 18 May 1993 (18.05.93) US</p> <p>(71) Applicant: <b>COLGATE-PALMOLIVE COMPANY [US/US];</b> 300 Park Avenue, New York, NY 10022 (US).</p> <p>(72) Inventors: <b>MANDANAS, Benjamin, Yap; 34 Polo Club Drive, Freehold, NJ 07728 (US). SKAGGS, James, Michael; 218 Avenue B, Bayonne, NJ 07002 (US). O'SULLIVAN, Sean, Patrick; 347 Plainfield Avenue, Edison, NJ 08817 (US). HEDIN, Christopher, John; 1108 Concord Drive, Bridgewater, NJ 08807 (US).</b></p> <p>(74) Agent: <b>McGREAL, Michael, J.; Colgate-Palmolive Company, 909 River Road, Piscataway, NJ 08855-1343 (US).</b></p>		<p>(81) Designated States: AU, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p><b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>
<p>(54) Title: <b>METHOD AND APPARATUS FOR DISPENSING VISCOUS MATERIALS</b></p>		
<p>(57) Abstract</p> <p>A method and apparatus for simultaneously dispensing a plurality of viscous materials, such as dentifrice pastes, produces a striped outer layer of a first material surrounding a core of a second viscous material. The apparatus (10) includes a collapsible tube or pump-type dispenser (12) containing a first viscous material (20) and a second viscous material (22) of a contrasting color in contact with the first material so that both materials are dispensed simultaneously. The tube or dispenser includes an outlet nozzle (14) having a shaped outlet (32) capable of scraping and removing a portion of the outer layer of viscous material to dispense the core material having stripes of the outer material. The nozzle is capable of forming a plurality of fine pin stripes on the core material.</p> <div data-bbox="1023 1134 1477 1995"> </div>		

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## METHOD AND APPARATUS FOR DISPENSING VISCOUS MATERIALS

### FIELD OF THE INVENTION

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The present invention is directed to a method and apparatus for simultaneously dispensing at least two different viscous materials. More particularly, the invention is directed to a method and apparatus for dispensing two different viscous materials to form an extrudate having a plurality of longitudinal stripes of one of the viscous materials.

15

### BACKGROUND OF THE INVENTION

20

Containers such as collapsible squeeze tubes have been used to dispense simultaneously at least two different materials. It is desirable to package the materials so that when dispensed, the different materials appear as longitudinal stripes in the extrudate. Several containers and methods for dispensing the materials have been developed.

25

Many of the containers for dispensing different viscous materials include containers having separate compartments or a second container disposed within a first container where each compartment or container contains a different material. These devices typically include a dispensing nozzle having separate channels to simultaneously dispense the materials from each compartment or container. These devices, although effective, are expensive to manufacture. In addition, these dispensing containers are difficult to fill and generally require complex filling nozzles. Examples of these types of containers are disclosed in U.S. Patent No. 4,211,341 to Weyn, U.S. Patent No. 3,175,731 to Ellman and British Patent No. 209,920.

30

Other forms of containers for dispensing two different materials include a single tube such as that disclosed in U.S. Patent No. 3,747,804 to Raaf et al. In this device the first material is placed in one end of the tube with the second material being placed in the discharge end of the tube. A dispensing nozzle is attached to the discharge end of the tube. The nozzle includes a collar extending into the tube such that a main channel leads to the first material in the lower end of the tube and a secondary channel leads to the second material in the discharge end. Pressure applied to the tube causes the two materials to be simultaneously dispensed through the nozzle. This type of dispensing is referred to as "pointing" the striping material onto a core of a base material. Another form of this type of device is disclosed in U.S. Patent No. 4,826,044.

Still another form of dispensing device for simultaneously dispensing two different materials is disclosed in GB 2142611A. This patent shows a filling nozzle for filling a tube with two dissimilar materials arranged so that a main body of material can be dispensed from the tube with longitudinal stripes of one of the dissimilar materials. The two materials fill the tube to form a core of the first material and a plurality of streams of the striping material extending along the interior of the tube walls. This type of filling is sometimes referred to as deep striping. In this type of container, when each of the two dissimilar materials have a similar rheology, the two materials can be dispensed simultaneously through a single nozzle to form a core of the first material with stripes of the second material.

Each of these dispensing devices are effective in dispensing two different materials. While several of these devices are capable of dispensing a core of one material and longitudinal stripes of a second material, the dispensers are limited to the size of the striping which can be produced. The rheology of the material is generally such that the ratio of the two materials within the container must be within a certain range. In particular, with deep

striping, the striping material must be provided in a certain amount to be dispensed with the core material. As a consequence, the dimensions of the striping must be of predetermined width and depth to dispense effectively. Furthermore, as the dimensions of the striping material within the tube decrease, the definition of the striping in the dispensed material decreases.

There is, therefore, a continuing need in the art for a dispensing device capable of dispensing two dissimilar materials to produce a core of one material having narrow striping of a second material. There is further a need in the art for a dispensing device capable of dispensing two or more materials to form a shaped extrudate.

#### Summary of the Invention

The present invention is directed to a method and apparatus for dispensing simultaneously two or more viscous materials. The invention is further directed to a dispensing device for dispensing two or more different materials to form an extrudate having a predetermined geometric shape with selected portions of the extrudate being formed from the different materials. Accordingly, it is a primary object of this invention to dispense viscous materials such as a dentifrice paste or gel in such a manner to form a core or base of a first material having stripes of a second material. In preferred embodiments of the invention, the dentifrice comprises two or more dissimilar materials of contrasting colors. The stripes may be formed as longitudinal or spiral stripes.

These and other objects of the invention are basically attained by providing a dispensing container or tube with a dispensing nozzle having a geometric-shaped dispensing outlet. In preferred embodiments, the dispensing outlet is a polygon-shaped opening having a plurality of radially disposed points. The container is provided with two or more dissimilar materials having compatible rheologies so that each of the materials are dispensed simultaneously at a desired rate. The materials are placed in the same

container in designated regions such that the materials are in contact with each other. In one embodiment, two dissimilar materials are filled in a tube such that one of the materials forms a core and the second material defines longitudinal stripes. Generally, the stripes are formed on the peripheral edge of the tube so that when the materials are dispensed, the dispensed material appears as longitudinal stripes. In alternative embodiments, the dissimilar materials are arranged as a central core and one or more outer annular layers. In preferred embodiments, each of the dissimilar materials are disposed in areas extending longitudinally to the container such that the materials extend substantially the full length of the container.

The dispensing outlet in the container is capable of shaping the materials as they are dispensed. Preferably, the radial points of the outlet are positioned to coincide with the stripes of the material in the container. As the materials are dispensed from the container through the dispensing nozzle, the radial points of the outlet essentially scrape and restrict the flow of the striping material as it is dispensed to form small and narrow stripes. The dispensing outlet may be a number of different shapes including, for example, a star shape, triangle shape, square shape or slot shape.

In one preferred embodiment, the dispensing outlet is a star shape. The container includes a plurality of stripes of one of the materials corresponding to the number of points of the star and are positioned in the container to align with the points of the star. As the materials are dispensed through the nozzle, the points of the star shape the extrudate so that the extrudate has a substantially star-shaped cross section with the tips of the star being formed from the striping material.

These and other objects and salient features of the invention will become apparent from the following detailed description which, when taken in conjunction with the drawings, discloses several preferred embodiments of the invention.

Brief Description of the Drawings

Referring to the drawings which form part of this original disclosure in which:

5           Figure 1 is an elevated view of the container in accordance with a preferred embodiment of the invention;

Figure 2 is a cross-sectional view of the container taken along lines 2-2 of Figure 1;

10           Figure 3 is a cross-sectional view of the container taken along line 3-3 of Figure 1;

Figure 4 is an elevated end view of the dispensing nozzle in a first embodiment of the invention, and Figure 4A is a perspective view of the material having been dispensed from the nozzle of Figure 4, showing a star shape with the tips of the star having longitudinal stripes;

15           Figure 5 is an elevated end view of a dispensing nozzle in a second embodiment of the invention, and Figure 5A is a perspective view of the material having been dispensed from the nozzle of Figure 5 showing a plurality of fine longitudinal stripes;

20           Figure 6 is an elevated end view of the dispensing nozzle in a third embodiment of the invention, and Figure 6A is a perspective view of the material having been dispensed from the nozzle of Figure 6 showing the longitudinal stripes;

25           Figure 7 is an elevated end view of a fourth embodiment of the invention, and Figure 7A is a perspective view of the material dispensed from the nozzle of Figure 7 showing the two longitudinal stripes;

Figure 8 is a cross-sectional view of a container in a further embodiment of the invention showing the two different materials in the container arranged to form longitudinal stripes;

Figure 9 is an end view of the dispensing nozzle in a further embodiment, and Figure 9A is a perspective view of the material dispensed from the nozzle showing the longitudinal stripes;

5 Figure 10 is a cross-sectional view of the container in a further embodiment showing the different materials arranged as concentric annular columns, and Figure 10A is a perspective view of the material having been dispensed and showing the annular stripes;

10 Figure 11 is a cross-sectional view of the container in a further embodiment showing the materials arranged as a center core, a middle annular core, and an outer annular core divided into four wedge-shaped columns of different colors;

Figure 12 is a cross section of a further embodiment of the container showing a center core and an outer core where the outer core includes five spaced apart longitudinal columns of different materials;

15 Figure 13 is an end view of the dispensing nozzle in a further embodiment showing a dispensing outlet having a plurality of alternating long and short radial legs, and Figure 13A is a perspective view of the material dispensed from the nozzle of Figure 13.

20 Detailed Description of the Invention

The disadvantages and limitations of the previous dispensing devices are overcome by the present invention, while providing an efficient and inexpensive dispensing device for dispensing the materials in a predetermined geometric shape having longitudinal stripes. The invention is primarily directed to a container for dispensing viscous materials, and in particular, paste or gel dentifrices. Referring to Figure 1, the dispensing device 10 comprises a container 12 for containing a viscous material and a dispensing nozzle 14.

25 The container 12 may be any suitable container capable of dispensing viscous materials, and in particular for dispensing a dentifrice paste or gel. The

container may be a thin-walled collapsible tube or a rigid container having a conventional pump or other mechanical dispensing apparatus. In preferred embodiments, the container is a squeeze tube made of a synthetic, multilayer plastic material such as nylon, polyethylene, polypropylene, ethylene vinyl alcohol, polyesters, and the like. The preferred containers include an inner barrier layer to prevent adsorption of flavor components or other unstable components in the viscous material. In the embodiment of Figures 1 and 2, the container 12 is a collapsible tube having a cylindrical side wall 16 with a closed bottom end 18 and a tapered collar 19 at the upper end, coupled to the dispensing nozzle 14. In the embodiment of Figures 1 and 2, the dispensing nozzle 14 is integrally molded with the sidewall of the container, although in alternative embodiments the nozzle may be molded separately such as by injection molding, and attached to the tube by conventional means.

In the embodiment of Figures 1-3, the container is filled with two dissimilar materials. As shown in Figures 2 and 3, a first viscous material 20 defines a core centered axially in the tube 12 and extending substantially the full length of the tube. A second viscous material 22 surrounds the core 20 in the form of an annular column and also extends the full length of the tube. The viscous materials are injected into the tube from the bottom end using a conventional coaxial filling nozzle as known in the art. The tube is then closed at the bottom end by crimping at 24 as shown in Figure 1.

The dissimilar viscous materials 20, 22 in preferred embodiments are dentifrice compositions. As used herein, the term dissimilar materials is intended to refer to materials which differ in texture, composition, and particularly color. For example, the viscous materials may be an opaque dentifrice paste, a colored paste, or a translucent or clear gel. The viscous materials may also contain colored flakes, speckles or other colored bodies to enhance the aesthetic appearance of the material. In preferred embodiments, the container 14 contains at least two dissimilar compositions having

contrasting colors. For example, in the embodiment of Figures 1-3, the first core material may be a white or pigmented paste, and the outer material may be a colored gel of a contrasting color.

5 The rheology of each of the dissimilar materials are compatible with each other so that the compounds are dispensed simultaneously from the dispensing container. It is desirable to have the dissimilar materials with similar rheologies so that each material can be dispensed at the same rate. The actual dispensing rate of the materials will depend in part on the volume of each material in the container and the shape and dimensions of the dispensing outlet. The materials further have flow characteristics and slump properties to be easily dispensed from the container and retain the extruded shape for a sufficient length of time, typically about 60 seconds.

15 The preferred dentifrice compositions are conventional formulations as known in the art. Typical dentifrice compositions include a gelling agent, a humectant, polishing material, a surfactant, and a fluoride-providing compound. One example of a clear dentifrice comprises sodium monofluorophosphate, glycerine, sorbitol, and amorphous silica. Suitable dentifrice compositions are disclosed in U.S. Patent No. 4,374,823; U.S. Patent No. 4,375,460; U.S. Patent No. 4,467,921; and U.S. Patent No. 4,456,585.

20 The dispensing nozzle 14 is in the form of a collar 26 extending axially from the upper end of the tube. In preferred embodiments, the collar 26 includes external threads 28 for coupling with a standard screw cap (not shown). The nozzle 14 includes a lip 30 extending radially inward from the outer edge to define the dispensing outlet 32.

25 The dispensing outlet 32 is shaped and dimensioned to shape the dentifrices or other viscous materials as the materials are dispensed. The outlet 32 and the lip 30 are also dimensioned to cooperate with the dissimilar materials within the tube to shape at least one of the materials to produce a striped pattern of the second material on the core material. As shown in the



embodiment of Figures 2 and 3, the container 12 contains two dissimilar materials arranged concentrically. The outer material 22 is forced upwardly through the collar 26 simultaneously with the core material 20. As shown in Figure 2, the lip 30 is dimensioned to cooperate with the outer material 22 to control the amount of the material 22 being dispensed through the dispensing outlet 32 in relation to the amount of the core material 20 being dispensed. The dispensing outlet is shaped to scrape a portion of the outer material 22 from the core material 20 and restrict the flow of the outer material to produce a striped pattern of the outer material 22 on the core material 20.

In preferred embodiments, the core material and the striping material are disposed in longitudinal areas of the container and extend the full length of the container while being in continuous physical contact with each other. Both materials are dispensed simultaneously by passing through an outlet and dispensing nozzle.

The dispensing outlet 32 may be any shape capable of shaping the core material 20 and the outer material 22. In preferred embodiments, the dispensing outlet 32 is a polygon-shaped opening having a plurality of substantially straight sides to define a plurality of radial points. In the embodiment of Figures 1-4, the dispensing outlet 32 is a star-shaped opening. The star-shaped opening as shown in Figure 4 is formed by side edges 34 which define radial points 36 of the star and troughs 38 between the points 36.

The two dissimilar materials 20 and 22 are dispensed simultaneously through the star-shaped opening to form a star-shaped extrudate 39 as shown in Figure 4A. The radial distance between the troughs 38 and the points 36 of the star-shaped outlet 32 is selected to define the pattern of the dissimilar materials as they are dispensed. In the embodiment of Figure 4, the troughs 38 of the star-shaped opening extend inwardly a sufficient distance to remove a portion of the outer material 22 from the core material 20 while dispensing the materials so that the trough 40 of the star-shaped extrudate are formed from the

core material 20. The points 36 of the star-shaped openings are positioned to allow a predetermined amount of the outer material 22 to be dispensed as points 42 of the extruded star which appear as longitudinal stripes as shown in Figure 4A. In preferred embodiments, the points 42 of the star-shaped outlet  
5 are aligned with the inner wall of the collar 26. This embodiment is referred to as the stars and stripes embodiment.

The position and dimension of the longitudinal stripes 42 of the extrudate can be controlled by the shape and dimension of the dispensing outlet, the placement of the dissimilar materials in the container, and the respective  
10 amounts of each material. The angle of the sides 34 with respect to each other which define the points of the star can be varied to control the width and depth of the stripes on the core. For example, a larger angle between the sides will produce wide stripes in the extruded material. In a similar manner, a small angle between the sides of the star will produce a fine, narrow pin stripe which  
15 is generally deeper than the stripes formed by the wider-angled sides. The polygon-shaped outlet is able to produce a plurality of fine stripes of one of the viscous materials without loss of definition which cannot be produced by filling the container with stripes or columns of the dissimilar materials and dispensing the materials through a standard annular outlet.

20 In a further embodiment illustrated in Figure 5, the dispensing nozzle 44 includes a dispensing outlet 46 having a plurality of side edges 48 defining a substantially serrated outlet. In this embodiment, it is desirable to fill the container with two dissimilar materials as concentric columns in the manner shown in Figures 2 and 3. The side edges 48 converge to define a plurality of  
25 alternating troughs 50 and points 52. The viscous materials are dispensed through the serrated outlet so that the troughs 50 remove a portion of the outer annular layer of material to expose the core material. The outer annular material is similarly dispensed through the points 52 to produce an extrudate

having a plurality of fine stripes of the outer material on a core of the inner material as shown in Figure 5A.

5 In a further embodiment shown in Figures 6 and 6A, the dispensing nozzle 54 includes a triangular-shaped dispensing outlet 56. In a similar manner as in the embodiments of Figures 1-5, the points 58 of the triangular-shaped dispensing outlet 56 produce a triangular extrudate 60 having the points 62 of the extrudate formed from the outer material. Figures 7 and 7A show a further alternative embodiment where the nozzle 64 includes a dispensing outlet 66 in the shape of an elongated slot. The viscous materials  
10 are dispensed from the outlet 66 in the form of strip 68 having longitudinal stripes 70 along the outer edges.

In a further embodiment illustrated in Figure 8, a tube 72 is filled with a core material 74 and columns of a striping material 76 disposed around the outer peripheral edge. The striping material forms longitudinal stripes or  
15 columns in the container. The two dissimilar materials are dispensed through the nozzle simultaneously. This arrangement of the two dissimilar materials is typically referred to as deep striping. A dispensing nozzle 78 as shown in Figure 9 includes a four-point star-shaped dispensing outlet 80. The outlet 80 includes a plurality of side edges 82 defining the points 84 and troughs 86 of the star. The striping material 76 is positioned in the tube to be aligned with the  
20 points 84 of the star-shaped outlet as shown by phantom lines in Figure 9.

The arrangement of the core material 74 and the striping material 76 in the tube 72 allow the materials to move through the dispensing nozzle 78 as a column of the core material 74 with stripes of the striping material 76 until the  
25 materials reach the dispensing outlet 80. As the materials pass through the dispensing outlet 80, the troughs 86 of the outlet 80 shape the materials to form the extrudate 88 into a star shape where the troughs 90 of the extrudate are formed from the core material. The points 84 of the outlet 80 shape the striping material 76 to form the points 92 of the extrudate as shown in Figure 9B.

In a further alternative embodiment shown in Figure 10, the tube 94 contains four dissimilar viscous materials 96, 98, 100 and 102 arranged as concentric annular columns. The four materials may be dispensed through a nozzle as in Figure 9A to produce an extrudate 106 having a star shape where the arms 108 of the star are made up of the four materials such that each material is visible.

Numerous arrangements and any number of dissimilar materials may be used to produce different effects in the extrudate. It is particularly desirable to use materials having contrasting colors. For example, in a further embodiment illustrated in Figure 11, the tube 110 contains six dissimilar materials. In this embodiment, a core material 112 is surrounded by an annular column 114 of a clear material. An outer annular layer being made up of four arcuate columns 116, 118, 120 and 122 surround the column 114. These materials may be dispensed through a dispensing outlet as in Figure 9 to produce a star-shaped extrudate having each of the arms making up the star formed from one of the dissimilar materials. The body of the star being formed from the transparent material 114 allows the core material 112 to be visible.

In a further embodiment illustrated in Figure 12, a tube 124 contains three dissimilar materials. A core material 126 of a first color is surrounded by an annular column 128 of a second material having a second color. Five spaced apart columns 130 of a third material of a third color are arranged around the peripheral edge of the second material 128. These materials may be dispensed in cooperation with a dispensing outlet as shown in Figure 4 with the points of the stars aligned with the space 132 between the columns 130. When dispensed, the body of the star-shaped extrudate will be formed from the core material 126 with the sides of the arms of the star formed from the material 128 and the tips of the star formed from the third material 130.

In a further embodiment of the invention shown in Figure 13, the dispensing nozzle 132 includes a dispensing outlet 134 having a star-like

shape defined by alternating short peaks 136 and long peaks 138. When two materials are arranged as concentric columns as shown in Figure 3, the dispensed materials produce a star-shaped extrudate having narrow stripes 140 formed by the short peaks 136 and dominant, broad stripes 142 formed from the long peaks 138.

It will be recognized that various arrangements and shapes of the dispensing outlet and the materials in the container can be made. In one embodiment, the outer material can be a colored translucent material or transparent material having colored bodies therein which can be dispensed as a thin layer on the core material so that the core is also visible.

Numerous other embodiments can be produced to form an extrudate having a desired shape and number of longitudinal stripes. By filling the container with two or more dissimilar materials and dispensing the materials through the polygon-shaped outlet, the position and dimension of the striping can be controlled. While several embodiments have been illustrated, it will be apparent to one skilled in the art that numerous alternative embodiments can be envisioned without departing from the scope of the invention as defined in the following claims.

WHAT IS CLAIMED IS:

1. A dispensing device comprising

5 a container containing a first viscous material axially disposed in said container, and at least one second viscous material axially contacting said first viscous material; and

10 dispensing means on said container for shaping said first and second viscous material as said first and second materials are being dispensed, and for dispensing said second material in a controlled amount with respect to the amount of said first material.

15 2. The device of claim 1, wherein said first and second material have contrasting colors and viscosities so that each material is simultaneously dispensed from said container as an inner core of said first material and an outer layer of said second material.

20 3. The device of claim 1, wherein said dispensing means includes means for removing a portion of said second material while dispensing said first and second materials as an inner core of said first material and at least one stripe of said second material on said core.

25 4. The device of claim 3, wherein said removing means comprises an inwardly extending lip having an orifice, said orifice having a polygonal shape.

5. The device of claim 4, wherein said orifice is a star shape.

6. The device of claim 4, wherein said orifice includes a serrated inner edge.

5 7. The device of claim 4, wherein said orifice includes a plurality of arms defining a trough between each of said arms, each of said troughs being disposed to shape said second material so that said second material is dispensed only through said arms of said orifice.

10 8. The device of claim 1, wherein said first material is contained in said container as a core and said second material is contained in said container surrounding said core.

15 9. The device of claim 1, wherein said first material is contained in said container as a core and said second material is contained in said container as a plurality of columns disposed longitudinally with respect to said container and extending substantially the length of said container, said columns being arranged radially around said core.

20 10. The device of claim 1, further comprising a third viscous material, said first, second and third viscous materials being contained in said container as concentric annular layers.

25 11. The device of claim 1, wherein said container is a collapsible squeeze tube.

12. The device of claim 1, wherein said first material is centrally disposed in said container and said second material surrounds said first material, said container including a third material in a plurality of columns disposed in said second material.

13. The device of claim 1, wherein said dispensing means includes a dispensing nozzle having a polygonal shaped outlet, said outlet having a plurality of alternating first and second arms extending radially outward from an axial center of said container, wherein said first arms have a radial length greater than said second arms so that said device dispenses said viscous materials to dispense a first stripe of second material on said core through said first legs and to dispense a second stripe of said second material on said core through said second arms, said second stripe having a narrower width than said first stripe.

14. The device of claim 1, wherein said first material is disposed in said container as a central core, said second material is disposed to surround said core and said container further includes a plurality of columns of a third material disposed radially around a perimeter of said second material.

15. A method of dispensing viscous materials comprising providing a container having a core of a first viscous material and a second viscous material surrounding said core; and

dispensing said first and second materials simultaneously through dispensing means, said dispensing means including shaping means for shaping only said outer layer to form a plurality of stripes on said first material.

16. The method of claim 15, wherein said shaping means forms a column of said materials and includes means for removing a portion of said second material from said column during dispensing to expose at least a portion of said core.



5           17.    The method of claim 15, wherein said shaping means includes a dispensing outlet, said outlet having a serrated inner edge whereby said dispensing of said first and second materials produces a core of said first material and a plurality of stripes of said second material on said core.

          18.    The method of claim 16, wherein said shaping means includes a dispensing star shaped outlet.

10           19.    The method of claim 16, wherein said shaping means includes a dispensing outlet having a polygonal shape.

          20.    The method of claim 16, wherein said shaping means includes a dispensing outlet having an elongated slot for dispensing said first and second materials.

15           21.    The method of claim 19, wherein said dispensing outlet includes a plurality of alternating first and second arms, said first arms having a radial length greater than the radial length of said second arms, said method comprising dispensing said materials through said dispensing outlet and  
20           producing an extrudate having a plurality of first longitudinal stripes formed from said first arms and a plurality of second longitudinal stripes formed from said second arms.

FIG. 1

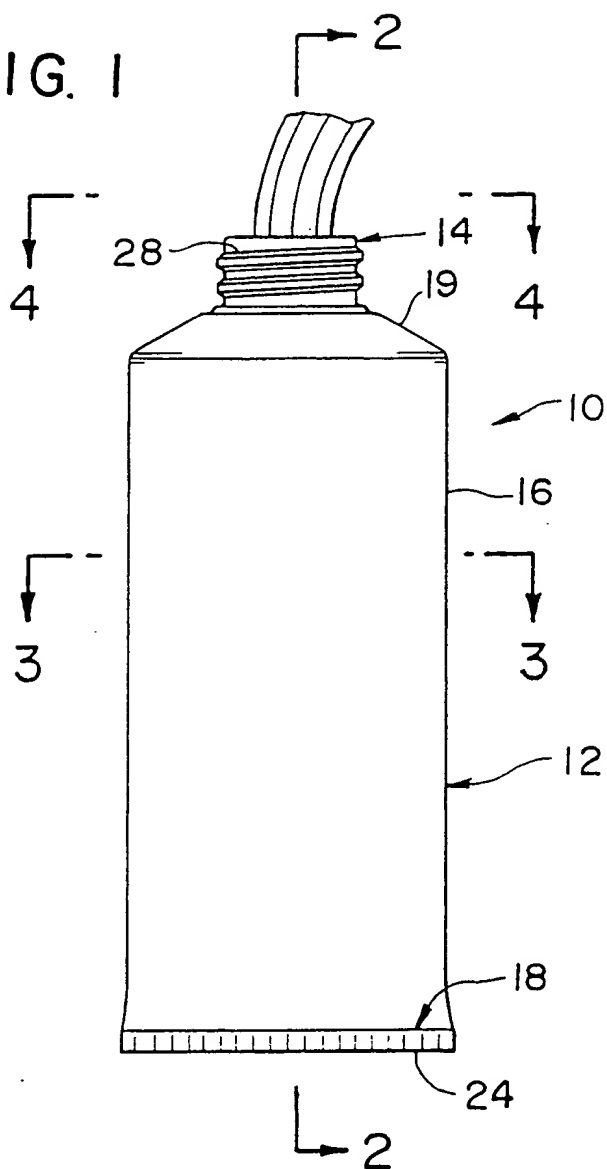


FIG. 3

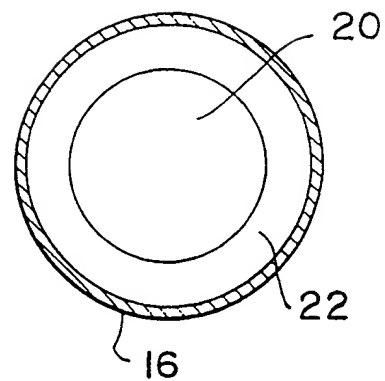
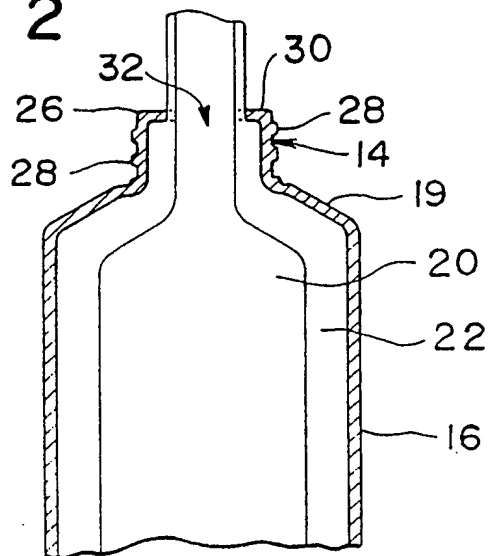
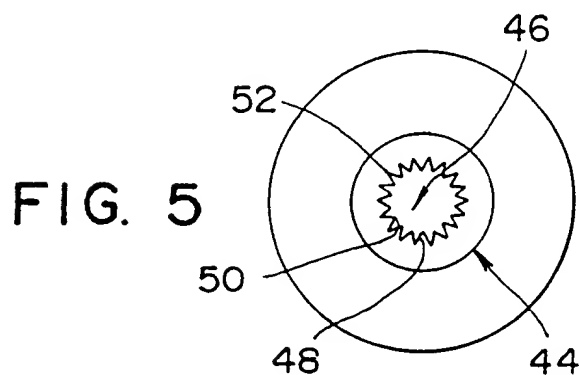
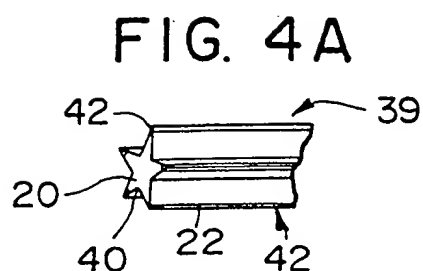
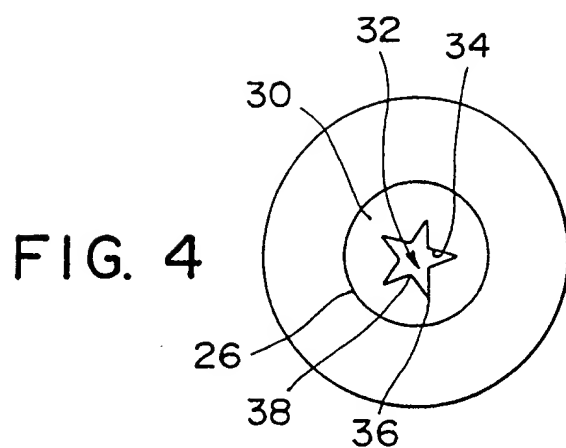
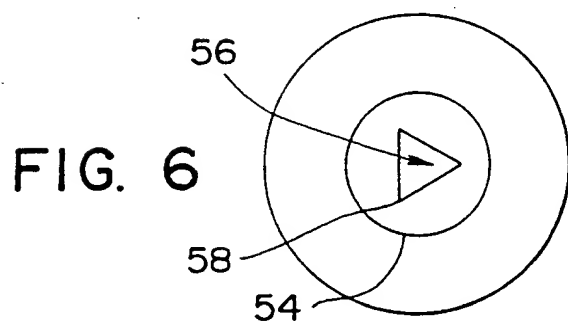


FIG. 2

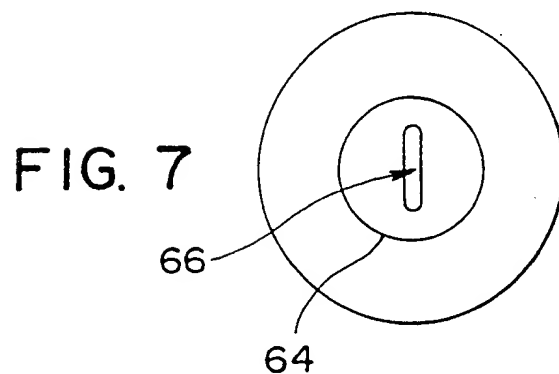
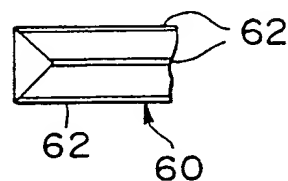




**FIG. 5A**



**FIG. 6A**



**FIG. 7A**

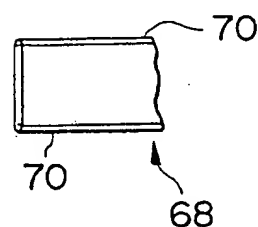


FIG. 8

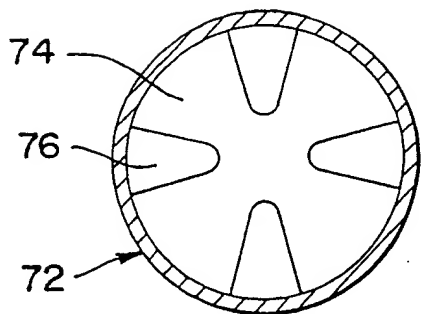


FIG. 9

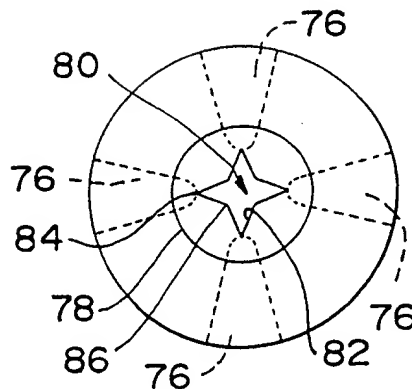


FIG. 9A

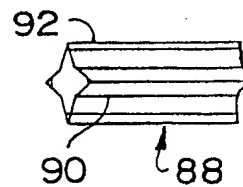


FIG. 10

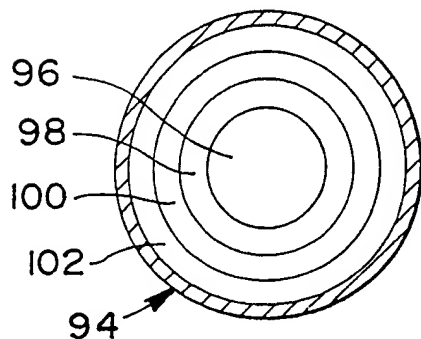


FIG. 10A

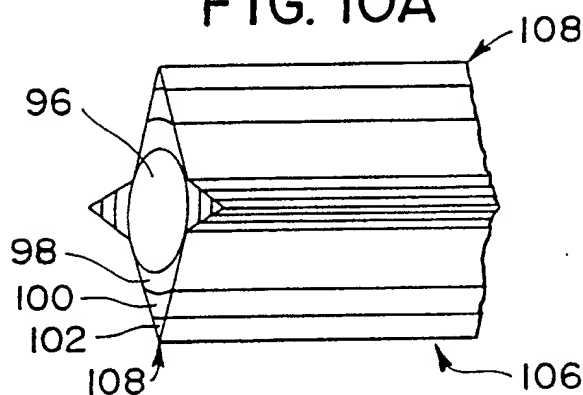


FIG. 11

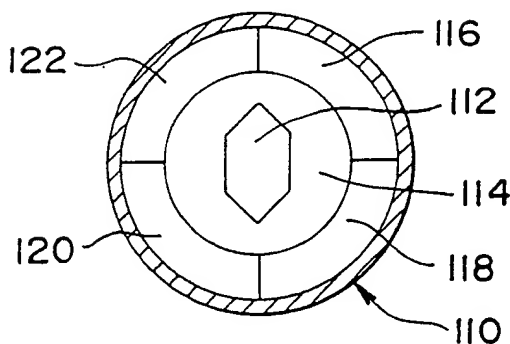


FIG. 12

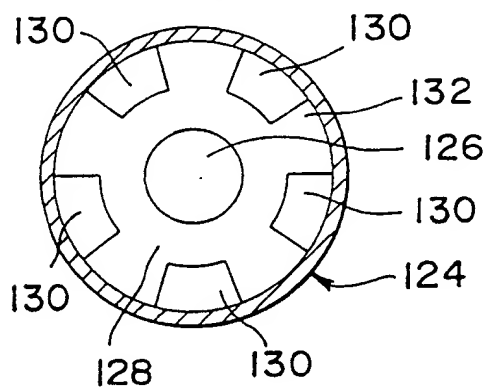


FIG. 13

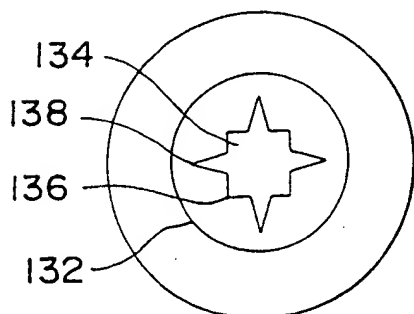
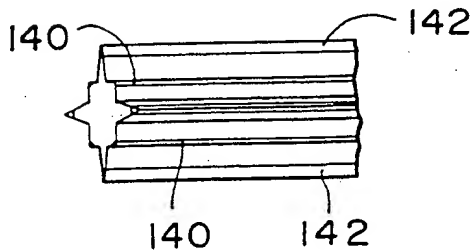


FIG. 13A



**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 5 B65D35/24

According to International Patent Classification (IPC) or to both national classification and IPC:

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 5 B65D A23G A23P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB,A,1 123 075 (STERWIN AG) 14 August 1968  see the whole document ---	1-4, 11, 15, 16, 19, 20
A	GB,A,2 161 863 (REALEX CORP.) 22 January 1986 see abstract; figures ---	1, 2, 8, 10, 11, 15
A	FR,A,2 243 120 (CEBAL) 4 April 1975  see figures -----	1-5, 11, 15, 16, 18



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

**\* Special categories of cited documents :**

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

12 September 1994

Date of mailing of the international search report

20.09.94

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax (+31-70) 340-3016

Authorized officer

Gino, C

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB-A-1123075		NONE	
GB-A-2161863	22-01-86	AU-B- 579850	15-12-88
		AU-A- 3890185	23-01-86
		CA-A- 1305949	04-08-92
		DE-A, C 3507134	23-01-86
		FR-A- 2567490	17-01-86
		JP-A- 61033963	18-02-86
		US-A- 4715518	29-12-87
FR-A-2243120	04-04-75	NONE	

# PATENT SPECIFICATION (11) 1 583 351

1 583 351

- (21) Application No. 17404/77 (22) Filed 26 Apr 1977  
 (23) Complete Specification Filed 12 Apr 1978  
 (44) Complete Specification Published 28 Jan 1981  
 (51) INT.CL.<sup>3</sup> B65D 3/02  
 (52) Index at Acceptance B8T 71  
 A2B 312 401 411 412 504 613 621  
 660 BD  
 B8C 15A 15E1 21A1  
 (72) Inventor: Alistair John McMahon



## (54) FILLING METHOD

(71) We, GENERAL FOODS LIMITED, a British Company of Banbury, Oxon, do hereby declare the invention, for which we pray that a Patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to metal cans containing two flowable edible materials and to a method and apparatus for providing such cans.

Liquid foodstuffs are typically canned on a continuous basis using a slit filler. The filling unit comprises an elongated downwardly-directed filling orifice through which the liquid foodstuff, which has been previously bulk sterilized, is pumped. A continuous line of open top cans, touching one another to minimize spillage, passes underneath the filling unit along the line of the filling orifice at such a speed that each can emerges partially or completely filled, as desired. If it is desired to incorporate two different liquid foodstuffs in a can, the conventional practice is to use two filling units in sequence, so that, if their viscosities are high enough to prevent mixing, one foodstuff sits on top of the other in the can. The filled cans pass to a seaming unit, situated in the same conveyor line, which attaches the seams lids onto each of the filled cans in turn. The whole operation is performed aseptically, generally in an atmosphere of super-heated steam.

The rate determining steps are those of the bulk sterilization of the liquid foodstuff, and of the seaming unit. The whole operation is carried out continuously at high speed, with a throughput of typically 300-350 cans, per minute. Suitable canning equipment for this purpose is supplied, for example by James Dole Engineering Co., and is described in various Patents in that name, including for example U.S. Patents 2,667,424 (1954) and 3,442,304 (1969).

This technique is particularly suitable for canning ready-to-serve puddings, custards and other dessert sauce compositions which are 'heat sensitive'. A disadvantage is that, though it can be used to meter two or more liquids into the can in two stages these

liquids can be separated only along a horizontal boundary. It would be commercially valuable to be able to meter liquids into a can which were separate from one another but in physical contact with one another along a vertical boundary. An advantage of cans so filled would be that each can could be used to provide several substantially identical servings. That is to say, each portion taken out of the can would have approximately the same proportion of the two ingredients. Side-by-side filling of this kind can be effected manually by providing a partition in the container, supplying different liquids to the container on opposite sides of the partition, and subsequently removing the partition; a technique along these lines has been described in British Patent Specification No. 1,218,280. However, the technique is necessarily a slow one and quite unsuited to the rapid continuous aseptic filling of metal cans with which this invention is concerned. These cans are of the conventional open-top type, with outwardly extending flanges (or lips) at their mouth, to enable them to be seamed or closed. These lips are especially advantageous in continuous slit filling, on account of their overlap in a moving sequence of such cans on a belt, which allows uninterrupted flow discharge without spillage.

In one aspect, the present invention provides a generally cylindrical metal can aseptically containing two flowable edible materials which are separate from one another but are in physical contact with one another along a boundary which runs substantially parallel to the axis of the can. By 'flowable edible material' we mean a material which can be made to flow, if necessary by heating, to a sufficient extent to enable it to be filled into the can through an orifice. The material in the can does not necessarily have to be capable of flowing at ambient temperature or at the time or temperature at which the can is opened. It is perfectly possible for the flowable edible material to contain dispersed solids, such as chunks of fruit in a fruit sauce, provided that it is flowable as

- a whole. In principle, it is perfectly possible for the can to contain other flowable or non-flowable (e.g. solid) edible materials in addition to the two previously noted.
- 5 In another aspect, the invention provides apparatus for providing metal cans aseptically filled with two flowable edible materials which are separate from one another but are in physical contact with one another along a substantially vertical boundary, which
- 10 apparatus comprises a housing aseptically enclosing:-
- A filling unit comprising two adjacent elongated downwardly-directed filling
- 15 orifices,
- means for supplying a bulk-sterilized flowable edible material to each of the said filling orifices,
- means for passing a continuous line of
- 20 metal cans in contact with one another underneath the filling unit, and
- means for closing the metal cans which have passed under the filling unit.
- In a further aspect, the invention provides
- 25 a method for providing metal cans aseptically filled with two flowable edible materials which are separate from one another but are in physical contact with one another along a substantially vertical boundary, which
- 30 method comprises providing a filling unit comprising two adjacent elongated downwardly-directed filling orifices and passing to each filling orifice a liquid edible material having a viscosity of at least 20 poise but
- 35 low enough to be dispensed through said filling orifice, continuously filling metal cans with the two edible materials by passing a continuous line of cans in contact with one another underneath the filling unit, and closing the filled cans, the whole operation being performed under aseptic conditions.
- The invention is of particular interest in relation to ready-to-serve puddings, that
- 45 is to say foodstuffs which would normally be served cold straight from the can. Such puddings are typically water-or milk-based with suitable thickening or gelling agents. The finished product when served, may be
- 50 either set or not. There is, however, no reason in principle why savoury formulations such as soups, mousses and fish or meat foodstuffs should not also be packaged in this way. In order to enhance consumer
- 55 appeal, it is preferred that the two flowable edible materials should be of different colours, or alternatively of different shades of the same colour; and/or different mouth-feel. It is preferred, from the view point of
- 60 consumer appeal, that the physical consistency of the two layers, at the time of consumption, should be similar in thickness. In this way, the two layers can be spooned out uniformly and will not smear. For example,
- 65 a water-based layer can be suitably thickened by the addition of gums like xanthan gum or locust bean gum, to give a similar consistency in the stored can to that of a milk-based gel in the second layer. The proportions of the two flowable edible materials can be equal or unequal as desired. The parameters controlling the proportions in which the two materials are fed into the can are the size of the filling orifice, the viscosity of the flowable edible material, and the pressure used to force it through the orifice. These parameters can readily be controlled by conventional methods. As the lengths of the slit-shaped filling orifices are preferably the same, control may be exercised by increasing or decreasing the width of the slits.
- Parameters that affect the filling process are surface tension, temperature and viscosity of the liquid edible material, of which the most important is viscosity. If the viscosity of either or both of the components is too low, less than about 20 poise, a high degree of mixing will occur through the filling and subsequent seaming processes. It is preferred that the major component should have a viscosity of 35 to 80 poise, and the minor component of from 55 to 100 poise, both measured on entry to the can. Higher viscosities can quite readily be used, provided that the material is flowable enough to be capable of being forced through the filling orifice. The viscosity figures quoted here are determined, using a Brookfield Viscometer (No. 5 Spindle at 50 rpm).
- Surface tension may be important, as the phenomenon of folding may occur through the filling head due to second order viscosity effects. This problem may be mitigated by the use of surface active agents to reduce the second order viscosity effects, but maintaining the first order viscosity.
- Temperature may be important, for if there is too high a temperature difference between the components filled into the can, some mixing may occur by convection. However, this problem should not be severe provided that the viscosities of the components are high enough.
- The two flowable edible materials which are to be in contact should be formulated in such a way that the water activities of the two are balanced according to the well known physical factors governing the stability of such systems. Water soluble colour may still be transmitted across the boundary by molecular diffusion, but with the area of contact between two vertical layers being small, this effect is minimised and is further diminished by the viscosity of the flowable materials.
- The boundary between the two flowable edible materials dispensed into a can as described above will be substantially planar, and will be visible, on opening the can as a substantially straight line. Consumer appeal



can be further enhanced by giving this straight line a curve, and this can very readily be achieved, according to a subsidiary feature of this invention, by swirling the contents of the can.

Aseptically canned products after filling have to have can lids seamed on within the aseptic unit. Such seamers in commercial practice operate on a number of different principles, essentially divided into those where the seaming head rotates against a fixed can, and those where the can is rotated against a fixed seaming head. It has been found that the use of a rotating filled can against a fixed seaming head can produce the desired swirl effect in the contents of a twin-filled can. The speed and time of rotation of the can has to be carefully adjusted in relation to the viscosity of the contents of the can. Typically a can may be rotated at 1400 rpm for approximately 1 second on a 300 can per minute Dole filling unit; this action will provide a swirl effect provided that the viscosity of the two edible components are from 20 to 150 poise and the head space of the cans is from 1/8" to 7/8". In general, speeds of rotation are from 300 to 3000 rpm for from 0.3 to 3 seconds can provide, depending on the viscosity of the flowable edible materials in the can, a desired swirl effect.

The invention will be further described with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of apparatus including a filling unit according to the invention, and

Figures 2A and 2B show filled cans before and after the swirling operation.

Referring to Figure 1, a filling unit 10 comprises two adjacent downwardly-directed filling orifices 12 and 14. The length of the unit 10, and of each orifice 12, 14 is Z. The width of orifice 12 is Y, and of orifice 14 is X. The filling unit 10 is a hollow vessel divided by a divider 16 (shown dotted in Figure 1) into two regions. A flowable edible material, such as custard which has been pre-sterilized in bulk, is supplied via pipe 18 to one region of the filling unit 10 and thence to the filling orifice 12. A different flowable edible material, for example a fruit sauce which has also been pre-sterilized in bulk, is supplied via a pipe 20 to the other region of the filling unit 10, and thence to the filling orifice 14. The pressure in the pipes 18 and 20 is chosen in conjunction with the widths, Y and X of the filling orifices 12 and 14, so that custard and fruit sauce are dispensed in the desired proportions of about 2 to 1 by volume.

A continuous line of metal cans 22 in contact with one another pass along a conveyor belt 24 under the filling unit 10 at such a

speed that they emerge just filled with edible material. The filled cans are then passed to a conventional seaming unit (not shown) of the kind where the can is rotated against a fixed seaming head, where lids are applied and sealed in position.

Figure 2A is a perspective view of a can 22 which has been filled with a milk based pudding 26 and fruit sauce 28 in the filling unit shown in Figure 1, but has not yet passed to the seaming unit. The boundary between the two materials 26 and 28 is therefore a straight line. Figure 2B shows the same can, with the lid removed after passage through the seaming unit. The boundary between the two components 26 and 28 is now curved giving the whole an attractive swirled appearance.

#### WHAT WE CLAIM IS:

1. A generally cylindrical metal can aseptically containing two flowable edible materials which are separate from one another but are in physical contact with one another along a boundary which runs substantially parallel to the axis of the can. 85
2. A can as claimed in claim 1, wherein the boundary between the two edible flowable materials is planar. 90
3. A can as claimed in claim 1, wherein the boundary between the two edible flowable materials is curved in a direction parallel to the axis of the can, whereby the boundary appears on the top surface of the contents of the can as a curved line. 95
4. Apparatus for providing metal cans aseptically filled with two flowable edible materials which are separate from one another but are in physical contact with one another along a substantially vertical boundary, which apparatus comprises a housing aseptically enclosing:- 100
  - a filling unit comprising two adjacent elongated downwardly-directed filling orifices,
  - means for supplying a bulk-sterilized flowable edible material to each of the said filling orifices, 110
  - means for passing a continuous line of metal cans in contact with one another underneath the filling unit, and 115
  - means for closing the metal cans which have passed under the filling unit.
5. Apparatus as claimed in claim 4 and substantially as hereinbefore described in Figure 1 of the drawings. 120
6. A method for providing metal cans aseptically filled with two flowable edible materials which are separate from one another but are in physical contact with one another along a substantially vertical boundary, which method comprises providing a filling unit comprising two adjacent elongated downwardly-directed filling orifices and passing to each filling orifice a liquid edible material having a viscosity of at least 20 130

- poise but low enough to be dispensed through said filling orifice, continuously filling metal cans with the two edible materials by passing a continuous line of cans in contact with one another underneath the filling unit, and closing the filled cans, the whole operation being performed under aseptic conditions.
7. A method as claimed in claim 6, wherein the sizes of the filling orifices, the viscosities of the flowable edible materials, and the pressures used to force them through the orifices, are chosen to determine the proportion in which the two edible materials are fed into the cans.
8. A method as claimed in claim 6 or 7, wherein a major proportion of one edible material and a minor proportion of the other edible material are fed into the can.
9. A method as claimed in claim 8, wherein the major component has a viscosity of 35 to 80 poise and the minor component a viscosity of 55 to 100 poise, both measured on entry to the can.
10. A method as claimed in any one of claims 6 to 9, wherein the filled cans are closed by means of a seamer in which the can is rotated against a fixed seaming head, whereby the contents of the can are given a swirled appearance.
11. A method as claimed in claim 10, wherein the viscosity of the two materials is in the range of 20 to 150 poise and the head space in the can is from  $1/8''$  to  $7/8''$ , and the can is rotated in the seamer at from 300 to 3000 rpm for from 0.3 to 3 seconds.
12. Metal cans as claimed in any one of the claims 1 to 3, aseptically filled with two flowable edible materials by the method of any one of claims 6 to 11.
- STEVENS, HEWLETT & PERKINS,  
Chartered Patent Agents,  
5 Quality Court,  
Chancery Lane,  
London, W.C.2.

1583351

COMPLETE SPECIFICATION

2 SHEETS

This drawing is a reproduction of  
the Original on a reduced scale  
Sheet 2

FIG. 2a

BEFORE

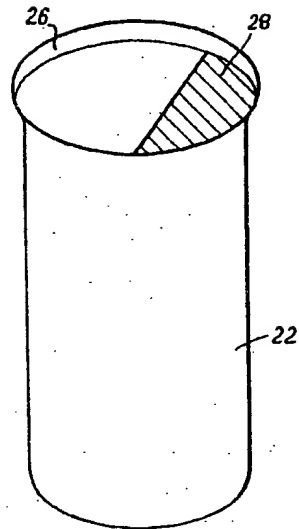
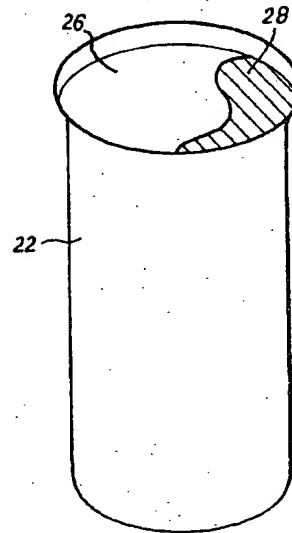


FIG. 2b

AFTER





426/90



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



Numéro de publication: **0 675 046 A1**

(12)

## DEMANDE DE BREVET EUROPEEN

(21) Numéro de dépôt: 94105157.5

(51) Int. Cl.<sup>6</sup>: **B65D 1/00**, B65D 35/24,  
B65D 77/08, A23L 1/225,  
A23L 1/24

(22) Date de dépôt: 31.03.94

(43) Date de publication de la demande:  
04.10.95 Bulletin 95/40

(84) Etats contractants désignés:  
AT BE CH DE DK ES FR GB GR IE IT LI LU NL  
PT SE

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(54) Ensemble pour produit alimentaire comprenant un tube contenant un produit à au moins deux constituants.

(57) L'invention concerne un ensemble pour produit alimentaire comprenant un tube contenant un produit à au moins deux constituants différents, dans lequel le tube est un tube normal et les constituants (6, 7) sont répartis autour de l'axe de symétrie (8) du tube de manière alternée avec chaque constituant sur toute la hauteur dudit tube.

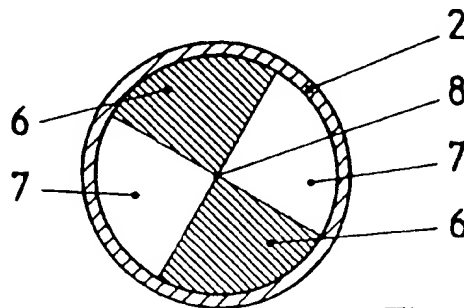


Figure 2

EP 0 675 046 A1

L'invention concerne un ensemble pour produit alimentaire comprenant un tube contenant un produit à au moins deux constituants.

On connaît déjà des tubes contenant deux constituants. Le brevet CH 670'612 concerne un emballage pour de la mayonnaise et du ketchup, mais dans lequel on utilise un tube avec un adaptateur spécial pour pouvoir séparer les deux constituants. D'autre part, le brevet DE 1185981 concerne un procédé de remplissage de tube classique, dans lequel on dose dans ledit tube une même masse mais colorée différemment. Le premier brevet utilise un tube spécial et le second ne concerne pas le dosage à proprement parler de constituants différents.

Le but de la présente invention est de pouvoir présenter un emballage en tube, dans lequel on utilise un tube classique, qui contient toutefois un produit à deux constituants différents.

L'invention concerne un ensemble pour produit alimentaire comprenant un tube contenant un produit à au moins deux constituants, dans lequel le tube est un tube normal et les constituants sont répartis autour de l'axe de symétrie du tube de manière alternée avec chaque constituant sur toute la hauteur dudit tube.

Par tube normal, on entend un tube comportant un corps de tube, une embouchure pour la sortie du produit et un capuchon de fermeture tel qu'on l'utilise classiquement pour le conditionnement de mayonnaise, par exemple.

Par constituants différents, on entend des constituants ayant des compositions chimiques différentes, comme par exemple les combinaisons suivantes : mayonnaise/ketchup, moutarde/ketchup, mayonnaise/moutarde, moutarde et/ou ketchup contenant un maximum de 40% d'huile et toute autre combinaison dans le domaine alimentaire avec des constituants sucrés comme crème chocolat (mélange de chocolat, graisse et épaississant) / crème de chocolat blanc (chocolat blanc, graisse et épaississant).

Le but de la présente invention est de pouvoir distribuer à partir d'un tube classique simultanément au moins deux produits soit dans une assiette pour la consommation directe, soit dans un but de décoration, par exemple sur des canapés.

On pourrait également envisager la présence dans le tube de trois constituants, mais la version avec deux constituants est préférée.

Avec les deux constituants envisagés, on calcule que ceux-ci soient dosés en quantités à peu près égales (en volume) et on les dose dans le tube de manière à avoir deux zones de l'un des constituants et deux zones de l'autre. On pourrait également envisager trois zones et plus, mais la solution de deux zones est la préférée.

Il est bien entendu que les deux constituants ayant des zones de contact sur toute la hauteur du tube et devant être distribués simultanément et de manière égale, il faut qu'ils obéissent à certaines contraintes physiques. Par exemple, pour que les constituants soient bien distribués ensemble, il faut que le seuil d'écoulement de la mayonnaise soit compris entre 100 et 140 Pa et celui du ketchup et de la moutarde entre 60 et 120 Pa. De préférence, le seuil d'écoulement de la mayonnaise est de l'ordre de 120 Pa.

Toujours pour la même combinaison, si on veut être sûr que les produits ne se mélangent pas quand on les distribue, il faut que la viscosité de la mayonnaise soit comprise entre 16000 et 25000 cP et celle du ketchup et de la moutarde entre 12000 et 22000 cP. De préférence, pour la mayonnaise, la viscosité est comprise entre 18000 et 20000 cP. Il est bien entendu que les valeurs de seuil d'écoulement et de viscosité du ketchup et de la moutarde restent aussi valables si ces composés contiennent jusqu'à 40% d'huile. Par huile, on entend normalement un mélange de ketchup respectivement de moutarde avec de la mayonnaise.

Les mesures de ces deux grandeurs physiques sont faites avec un appareil Contraves Rheomat 108 E/R, Messystem 13.

Pour la mayonnaise, on travaille avec une teneur en huile comprise entre 40 et 80 %, de préférence une teneur en huile comprise entre 70 et 80 %.

Le produit en tube obtenu contenant les deux constituants est conservable sans réfrigération pendant une durée minimum de 6 mois.

Pour des raisons de viscosité, il est nécessaire que la phase aqueuse, à savoir la phase ketchup et moutarde contienne entre 2 et 8 % d'épaississant, cet épaississant étant de préférence de l'amidon modifié. Le pH des deux constituants est acide, compris entre 3,4 et 4.

Pour le remplissage du tube, on utilise une buse spéciale. Avant le remplissage, il faut pasteuriser le ketchup et la moutarde pour permettre la durée de conservation souhaitée. Concernant la mayonnaise, elle est préparée de manière classique et ne nécessite aucun traitement thermique. Le remplissage dans le tube se fait sur un dispositif aseptique ou hautement hygiénique.

La suite de la description est faite en référence aux dessins, sur lesquels

Fig. 1 est une représentation schématique de l'emballage selon l'invention et

Fig. 2 est une coupe selon la ligne 2-2 de la Fig. 1.

Le tube (1) comprend un fond de tube scellé (3), un corps de tube (2), une embouchure (4) pour la sortie des deux constituants et un bouchon (5) pour fermer le tube. La combinaison des deux constituants est dans le tube, comme on le voit plus précisément sur la Fig. 2 : on a le ketchup (6) et la mayonnaise (7) répartis autour de l'axe de symétrie (8) du tube (1). Ces constituants sont répartis en deux zones distinctes.

Lorsqu'on utilise le tube, on le presse et les deux constituants sortent simultanément et en quantités égales : aucun mélange des deux constituants n'est visible, même après une conservation de 6 mois sans réfrigération.

On dispose selon l'invention d'un tube combinant deux constituants différents qui ne se mélangent pas, même après de multiples pressions sur ledit tube, permettant ainsi jusqu'au vidage complet du tube de doser régulièrement les deux constituants.

La suite de la description est faite en référence aux exemples.

#### Exemple 1.

On prépare une phase aqueuse de ketchup ayant un seuil d'écoulement de 90 Pa et une viscosité de 18000 cP et la composition suivante :

Concentré de tomates	17%
Vinaigre	26%
Sucre	25,2%
Eau	24%
Sel	2%
Epaississant	5,7%
Epices	0,1%

On pasteurise ce ketchup à 75 °C pendant 10 min.

On prépare également une mayonnaise de manière classique : celle-ci a un seuil d'écoulement de 118 Pa et une viscosité de 18500 cP et la composition suivante

Huile de tournesol	80%
jaune d'oeuf	6%
Vinaigre	10%
Epices	1%
sel	1%
eau	2%

Ces deux constituants sont amenés sur un système hautement hygiénique vers une buse de dosage qui remplit un tube normal à raison de 200 g par constituant. On obtient un tube ayant une bonne simultanéité de dosage des deux constituants, sans aucun mélange desdits constituants.

#### Exemple 2.

On reprend la composition de ketchup de l'exemple précédent qu'on pasteurise comme précédemment.

On prépare d'autre part, une phase grasse contenant 15 % de mayonnaise (selon l'exemple 1) 2,7 % d'épaississant et

82,3 % de moutarde douce.

On amène ces deux constituants dans un système de remplissage hygiénique et on remplit les tubes avec une buse spéciale.

On obtient dans ce cas également un système à deux constituants, qui restent bien séparés même après 6 mois de stockage.

L'emballage selon l'invention permet donc de mettre à disposition du consommateur un produit de longue conservation obtenu par des méthodes classiques, en respectant seulement certains paramètres physiques, chimiques ou physico-chimiques permettant de rendre possible la co-habitation dans un tube classique de constituants différents.

**Revendications**

1. Ensemble pour produit alimentaire comprenant un tube contenant un produit à au moins deux  
constituants différents, caractérisé en ce que le tube est un tube normal et en ce que les constituants  
sont répartis autour de l'axe de symétrie du tube de manière alternée avec chaque constituant sur toute  
la hauteur dudit tube.
2. Ensemble selon la revendication 1, caractérisé en ce qu'il contient deux constituants qui sont la  
mayonnaise et le ketchup.
3. Ensemble selon la revendication 1, caractérisé en ce qu'il contient deux constituants qui sont la  
moutarde et le ketchup.
4. Ensemble selon la revendication 1, caractérisé en ce que la moutarde et/ou le ketchup contiennent un  
maximum de 40% d'huile.
5. Ensemble selon l'une des revendications 1 à 4, caractérisé en ce que les deux constituants sont en  
quantités à peu près égales.
6. Ensemble selon l'une des revendications 1 à 6, caractérisé en ce que chaque constituant est présent sur  
deux zones.
7. Ensemble selon l'une des revendications 1 à 6, caractérisé en ce que le seuil d'écoulement de la  
mayonnaise est compris entre 100 et 140 Pa et celui du ketchup et de la moutarde entre 60 et 120 Pa.
8. Ensemble selon l'une des revendications 1 à 7, caractérisé en ce que la viscosité de la mayonnaise est  
comprise entre 16000 et 25000cP et celle du ketchup et de la moutarde entre 12000 et 22000 cP.
9. Ensemble selon l'une des revendications 1,2 et 5 à 8, caractérisé en ce que la teneur en huile de la  
mayonnaise est comprise entre 70 et 80%.
10. Ensemble selon l'une des revendications 1 à 9, caractérisé en ce que le ketchup et de la moutarde  
contiennent entre 2 et 8% d'épaississant.
11. Ensemble selon l'une des revendications 1 à 10, caractérisé en ce que l'épaississant est de l'amidon  
modifié.
12. Ensemble selon l'une des revendications 1 à 11, caractérisé en ce que la mayonnaise, le ketchup et la  
moutarde ont un pH compris entre 3,4 et 4.



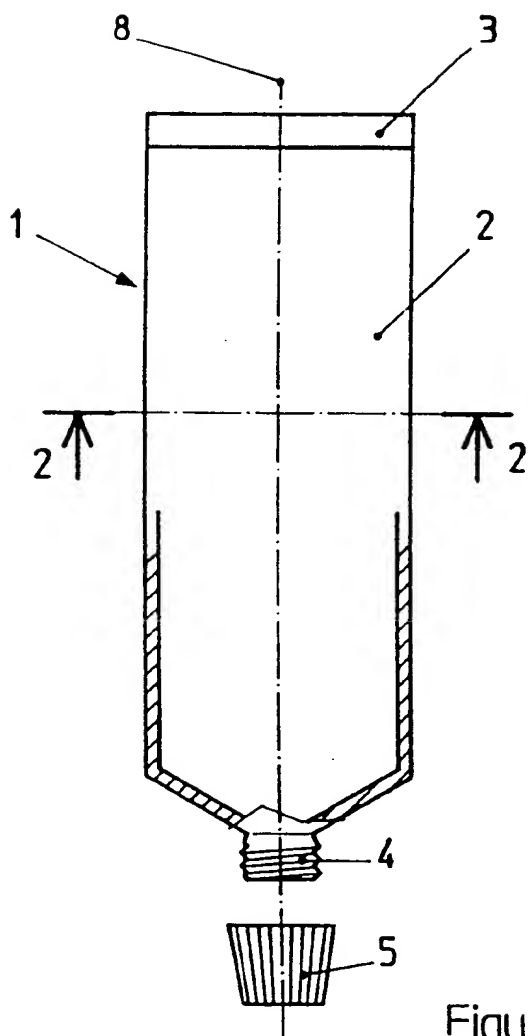


Figure 1

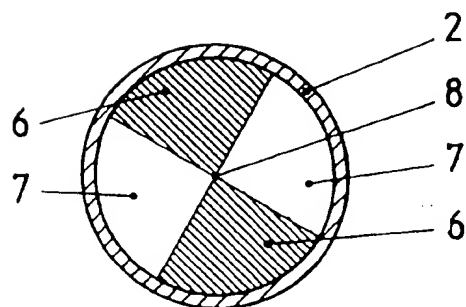


Figure 2



Office européen  
des brevets

# RAPPORT DE RECHERCHE EUROPEENNE

Numéro de la demande

EP 94 10 5157

DOCUMENTS CONSIDERES COMME PERTINENTS			
Catégorie	Citation du document avec indication, en cas de besoin, des parties pertinentes	Revendication concernée	CLASSEMENT DE LA DEMANDE (Int.Cl.6)
Y,D	CH-A-670 612 (NAEF) * page 2, colonne de gauche, ligne 27 - colonne de droite, ligne 51; figure 1 *	1-3,5,6	B65D1/00 B65D35/24 B65D77/00 A23L1/225 A23L1/24
Y	FR-A-2 248 023 (HENKEL & CIE.) * page 2, ligne 2 - ligne 6 * * page 3, ligne 23 - page 4, ligne 13; figures 1-6 *	1-3,5,6	
A	WO-A-92 12911 (L'OREAL) * figure 5 *	1	
A	EP-A-0 243 321 (BIOTECH S.A.) * figures 1,2 *	1	
A	GB-A-1 583 351 (GENERAL FOODS LTD.) * page 3, ligne 40 - ligne 83; figures 1-28 *	1	
A	EP-A-0 546 215 (SOC. DES PRODUITS NESTLE) * revendication 1 *	7,9	
			DOMAINES TECHNIQUES RECHERCHES (Int.Cl.4)
			B65D A23L
Le présent rapport a été établi pour toutes les revendications			
Lieu de la recherche		Date d'achèvement de la recherche	Examinateur
LA HAYE		21 Septembre 1994	Berrington, N
CATEGORIE DES DOCUMENTS CITES			
X : particulièrement pertinent à lui seul Y : particulièrement pertinent en combinaison avec un autre document de la même catégorie A : arrière-plan technologique O : divulgation non-écrite P : document intercalaire		T : théorie ou principe à la base de l'invention E : document de brevet antérieur, mais publié à la date de dépôt ou après cette date D : cité dans la demande L : cité pour d'autres raisons A : membre de la même famille, document correspondant	

IMAGE FILENAME

WPHOHJW1.GIF

-2- (WPAT)

ACCESSION NUMBER

95-338181/44

SECONDARY ACCESSION

C95-149076

XRPX

N95-253667

TITLE

Tube contg. two food products in separate regions -  
is used for simultaneous delivery of both without  
mixing partic. ketchup and either mayonnaise or  
mustard

DERWENT CLASSES

D13 Q32 Q34

PATENT ASSIGNEE

(NEST ) SOC PROD NESTLE SA

INVENTORS

ERRASS W, DIETHALM R

PRIORITY

94.03.31 94EP-105157

NUMBERS

9 patent(s) 26 country(s)

PUBLICATION DETAILS

EP-675046 A1 95.10.04 \* (9544) F 6p B65D-001/00  
R: AT BE CH DE DK ES FR GB GR IE IT LI LU NL PT  
SE

WO9526907 A1 95.10.12 (9546) F 16p B65D-001/00

NW: \*AU \*BR \*CA \*CN \*FI \*JP \*MX \*NO \*NZ \*US

AU9520649 A 95.10.23 (9605) B65D-001/00

Based on WO9526907

FI9505729 A 95.11.28 (9607) B65D-000/00

NO9504743 A 95.11.23 (9607) B65D-035/00

BR9505796 A 96.02.27 (9615) B65D-001/00

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CN1125925 A 96.07.03 (9748) B65D-001/00

NZ-282757 A 98.05.27 (9827) B65D-035/26

Based on WO9526907

AU-691597 B 98.05.21 (9832) B65D-001/00

Previous Publ. AU9520649

Based on WO9526907

CITATIONS

CH-670612; EP-243321; EP-546215; FR2248023;

GB1583351; WO9212911; DE1185981; FR1311899;

US3952782; WO9426606

APPLICATION DETAILS

94EP-105157 94.03.31

95WO-CH00069 95.03.30

95AU-020649 95.03.30

95WO-CH00069 95.03.30 95FI-005729 95.11.28

95WO-CH00069 95.03.30 95NO-004743 95.11.23

95BR-005796 95.03.30 95WO-CH00069 95.03.30

95CN-190248 95.03.30

95NZ-282757 95.03.30 95WO-CH00069 95.03.30

95AU-020649 95.03.30

MAIN INT'L CLASS.

B65D-000/00 B65D-001/00 B65D-035/00 B65D-035/26

SECONDARY INT'L CLASS.

A23L-001/225 A23L-001/24 B65D-035/24 B65D-077/08

ADD'L INT'L CLASS.

B65C-003/02

ABSTRACT

EP-675046 A

Assembly for food product comprises a tube contg. at  
least 2 constituents which are distributed around

the

tube's axis of symmetry in alternating fashion, each  
constituent extending the entire length of the tube.

The mustard and ketchup contain at most 40%  
oil, plus 2-8% thickener (partic. modified starch),  
and has flow threshold (Ft) 60-120 Pa and viscosity  
(V) 12000-22000 cP. The mayonnaise contains 70-80%  
oil, and has Ft 100-140 (pref. about 120) Pa and V  
16000-25000 (pref. 18000-20000) cps. All components  
have pH 3.4-4.

USE - Tube esp. contains ketchup plus  
mayonnaise or mustard but may also contain chocolate  
and white chocolate creams.

delivery

ADVANTAGE - Device allows simultaneous

of both constituents, without visible mixing, from a normal tube (i.e. one without a special adaptor), either for direct consumption or for decoration. The tubes can be stored without refrigeration for at least 6 months. (Dwg.2/2)

SS 2?

**(12) PATENT**  
**(19) AUSTRALIAN PATENT OFFICE**

**(11) Application No. AU 199650797 B2**  
**(10) Patent No. 714008**

(54) Title  
Combination comprising a pasty food and a package

(51)<sup>6</sup> International Patent Classification(s)  
A23L 001/24 A23L 001/221

(21) Application No: 199650797 (22) Application Date: 1996.04.19

(30) Priority Data

(31) Number (32) Date (33) Country  
95201024 1995.04.21 EP

(43) Publication Date : 1996.10.31  
(43) Publication Journal Date : 1996.10.31  
(44) Accepted Journal Date : 1999.12.16

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AU9650797

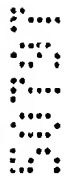
(12) PATENT ABRIDGMENT (11) Document No. AU-B-50797/96  
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 714008

- (54) Title  
COMBINATION COMPRISING A PASTY FOOD AND A PACKAGE
- International Patent Classification(s)  
(51)<sup>6</sup> A23L 001/24 A23L 001/221
- (21) Application No. : 50797/96 (22) Application Date : 19.04.96
- (30) Priority Data
- |             |           |                                |
|-------------|-----------|--------------------------------|
| (31) Number | (32) Date | (33) Country                   |
| 95201024    | 21.04.95  | EP EUROPEAN PATENT OFFICE (EP) |
- (43) Publication Date : 31.10.96
- (44) Publication Date of Accepted Application : 16.12.99
- (71) Applicant(s)  
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- (57) Claim

# **ABSTRACT**

The invention relates to a combination of food and symmetrical package (1), the package containing a food having at least two components (3), (4), containing in each case one of these components alternating along the axis of symmetry and these

5 components having a Bostwick viscosity between 40 and 60 mm.



**AUSTRALIA**

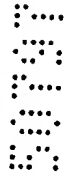
PATENTS ACT 1990

**COMPLETE SPECIFICATION**

FOR A STANDARD PATENT

**ORIGINAL**

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Actual Inventors: Brigitte HILLEBRAND and Hans Uwe TRUECK



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Invention Title: "COMBINATION COMPRISING A PASTY FOOD AND  
A PACKAGE"

The following statement is a full description of this invention, including the best method of performing it known to us:-



**Combination comprising a pasty food and a package**

The invention relates to a combination comprising a pasty food and a symmetrical package which contains a food having at least two components and which contains in each case one of these components alternating along the axis of symmetry.

5 French Patent No. 2248023 already relates to a package of this type having two different components, which comprise a fatty phase and an aqueous phase. However, this patent is restricted to the cosmetics sector. A gelation process of the product is utilized in the package with the aid of a mould piece to be removed subsequently.

The object underlying the invention is to have a combination available which  
10 contains a food having at least two components separately. Storage trials have shown that all products filled as two or more phases have a flavour advantage in comparison to mixed versions having an identical formula. In product combinations of this type, however, special adaptations of the formula are necessary. For example, possible migration processes can be prevented by exchanging oil-soluble colorants for water-  
15 soluble colorants.

According to a first aspect the present invention provides an assemblage providing a composite food product comprising a container having a body which extends to a container opening with an interior axis of symmetry which extends from a position with respect to the container opening to an opposing container base, and at least two food-  
20 component phases which are contained within the container, a first food-component phase comprising a food substance and a water constituent and a second food-component phase comprising a food substance and oil and water constituents, the oil being present in an amount of from 10% to 80% by weight, wherein the food-component phases have a



Bostwick viscosity between 40 mm and 60 mm and are arranged symmetrically with respect to the axis and to contact one another side-by-side.

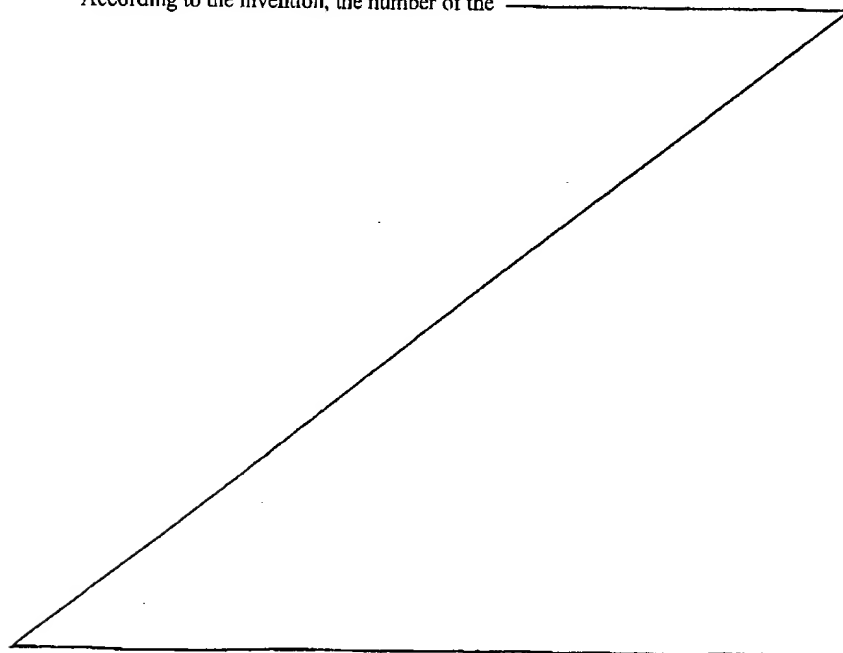
Unless the context clearly requires otherwise, throughout the description and the claims, the words 'comprise', 'comprising', and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to".

Bostwick viscosity is taken to mean the measurement of the flow path of a product in the course of 30 seconds at 20°C. This measurement is carried out with an instrument from Kinematica AG (Littau, Switzerland).

10 Pasty foods are taken to mean those foods which fall into the abovementioned viscosity range. Preferably, a combination of mayonnaise and a seasoning phase is used.

The symmetrical package is either a glass package or a plastic package, for example made of poly(ethylene terephthalate) or a tube package.

According to the invention, the number of the



components is not critical: at least two components are employed. Preferably, two components are available: for example, more likely, an oily and an aqueous phase. The combination mayonnaise with a seasoning phase is particularly preferred.

5 In order to achieve an optimal phase separation, a certain viscosity of the two phases must be achieved. Studies have shown that at too low a viscosity the phases run into one another and thus mix. If the viscosity is too high, air inclusions between the phases occur and the phases do not lie smoothly on one another. On the other hand, the miscibility of the two phases is problematic in the application, i.e. the phases may be stirred together only with difficulty. Furthermore, it has been found that the filling operation is likewise highly dependent on the viscosity.

As already mentioned above, the product texture and the optimum filling operation are achieved when the two components have a Bostwick viscosity between 40 and 60 mm. In the case of a combination mayonnaise/seasoning phase, a Bostwick viscosity of 40-50 mm is selected for the two phases.

The two components are filled in different types of shapes, such as spiral, in layers or vertically next to one another. Preference is given to spiral filling, in order to increase the optical attractiveness. However, this type of filling is not critical: many variations are possible. If layers are filled, the conditions are the same as mentioned above, i.e. the Bostwick viscosity of the two phases is between 40 mm and 60 mm.

The number of zones of the two components is likewise not critical: three or more zones each may be employed. Preferably, there are two, three or four zones for each component.

35 As far as the composition is concerned, the mayonnaise contains between 10 and 80% of oil and the seasoning phase between 0 and 70% of oil, between 4 and 50% of water and between 0.2 and 6% of starch.

The seasoning phase comprises a base of vegetable

puree, fruit puree and other seasoning constituents, such as mustard in ground form or in the form of grains. The seasoning phase can also contain pieces, both vegetables and fruits, the size of the pieces being between 1 and 4 mm. The foodstuff comprises 20-80% mayonnaise and 80-20% seasoning phase, and is preferably made up of a approximately 50% of mayonnaise and approximately 50% of the seasoning phase.

The two-phase products are generally rated fresher, less acidic and more aromatic in comparison to a product filled in a mixed state.

The ingredients for the seasoning phase are mixed, pasteurized and recooled. These steps are necessary in order to ensure the microbiological safety and resistance to spoilage of the products. In addition, a heating step is necessary in order to gelatinize the modified starch.

As far as the mayonnaise is concerned, it is prepared in a conventional manner. The pH of the two components is in the acidic range, i.e. between 2.8 and 5.

The combinations of the invention can be stored without refrigeration for at least 12 months.

The two-phase products developed are packaged in jars by means of a coextrusion feeder which is equipped with piston valves. The products are filled in different types of shapes via a plurality of rotating nozzles with simultaneous lowering of the jar. This will be implemented industrially by means of longitudinally running feed belts and fillers connected in parallel.

The invention is now described in more detail in association with the drawings, where

Fig. 1 shows a diagrammatic representation of the package and

Fig. 2 shows a section along line A-A of Fig. 1.

The package (1) has a screwed-on lid (2) and

contains a product having two components (3) and (4). These components are filled in a spiral shape through an angle of 300°. The seasoning phase (3) comprises a base of tomatoes/squash and the mayonnaise (4) contains 50% oil.

The invention is now described in more detail in association with the examples, the ratio mayonnaise/seasoning phase being 50/50.

**Example**

**10 A. Mayonnaise**

A mayonnaise is used having the following composition (%)

	Oil content	50
	Egg yolk content	1.5
15	Seasoning constituents	3
	Vinegar content 11%	4
	Salt content	2
	Starch content	2.2
	Sugar content	9.2
20	Water content	28.1

The mayonnaise has a Bostwick viscosity of 50 mm.

**B. Seasoning phase.**

For the seasoning phase, 5 variants are listed which have a consistency like the mayonnaise phase used.

25 For all of these examples, the Bostwick viscosity was set to 40-50 mm. The contents are all in %.

Constituents	Mexicana	Tomato/ squash	Green sauce	Mustard	Exotica
Vegetable puree	12	18	5	28 (mustard)	25 (fruit content)
Vegetable pieces/ herbs	17	35.1	15.6	0	0
5 Fat content	15	0	20	15.0	0
Starch content	3.6	2.6	3.5	0.2	4
Sugar content	12	12	8.5	6	21
Vinegar content 11%	4.8	7.5	4.6	9.0	5.5
10 Salt content	3.8	2.2	2.8	3.5	0.4
Flavouring constituents	2	0.1	6	0.2	0.5
Water content	29.8	22.5	34	38.1	43.6

Each of these components is then filled together  
15 with the mayonnaise at 50-50 on a hygienic line.

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THE CLAIMS DEFINITION THE INVENTION ARE AS FOLLOWS:

1. An assemblage providing a composite food product comprising a container having a body which extends to a container opening with an interior axis of symmetry which extends from a position with respect to the container opening to an opposing container base, and at least two food-component phases which are contained within the container, a first food-component phase comprising a food substance and a water constituent and a second food-component phase comprising a food substance and oil and water constituents, the oil being present in an amount of from 10% to 80% by weight, wherein the food-component phases have a Bostwick viscosity between 40 mm and 60 mm and are arranged symmetrically with respect to the axis and to contact one another side-by-side.
2. An assemblage according to claim 1 wherein the second food component phase is a mayonnaise.
3. An assemblage according to claim 1 or 2 wherein the first food component phase is an aqueous phase.
4. An assemblage according to claim 3 wherein the first food-component phase further comprises a starch constituent.
5. An assemblage according to claim 4 wherein the starch is a modified starch.
6. An assemblage according to claim 4 wherein the starch is in an amount of between 0.2% and 6% by weight.
7. An assemblage according to claim 1 or 2 wherein the first food substance is selected from the group consisting of a vegetable puree, a fruit puree, vegetable pieces, fruit pieces and a mustard.



8. An assemblage according to claim 7 wherein the first food-component phase further comprises a modified starch constituent.
9. An assemblage according to claim 1 or 2 wherein the first food-component phase further comprises an oil and the oil is in an amount of up to 70% by weight and the water  
5 constituent is in an amount of between 4% and 50% by weight.
10. An assemblage according to claim 9 wherein the first food-component phase is a mustard.
11. An assemblage according to claim 7 wherein the first food-component phase further comprises an oil and the oil is in an amount of up to 70% by weight and the water  
10 constituent is in an amount of between 4% and 50% by weight.
12. An assemblage according to claim 11 wherein the first food-component phase further comprises a starch.
13. An assemblage according to claim 1 wherein, with respect to a cross-section of the two food-component phases perpendicular to the container interior axis of symmetry, the  
15 two food-component phases are arranged side-by-side.
14. An assemblage according to claim 13 wherein the two food-component phases are arranged so that there are two first food-component phase zones and two second food-component phase zones which alternate.
15. An assemblage according to claim 1 wherein the side-by-side phases are arranged  
20 in a spiral form wherein the container interior axis of symmetry is an axis of the spiral form.





16. An assemblage comprising a pasty food and a symmetrical package, substantially as herein described with reference to the example or any one of the accompanying drawings.

DATED this 29th Day of September, 1999

5 SOCIETE DES PRODUITS NESTLE S.A.

Attorney: PAUL G. HARRISON  
Fellow Institute of Patent Attorneys of Australia  
of BALDWIN SHELSTON WATERS

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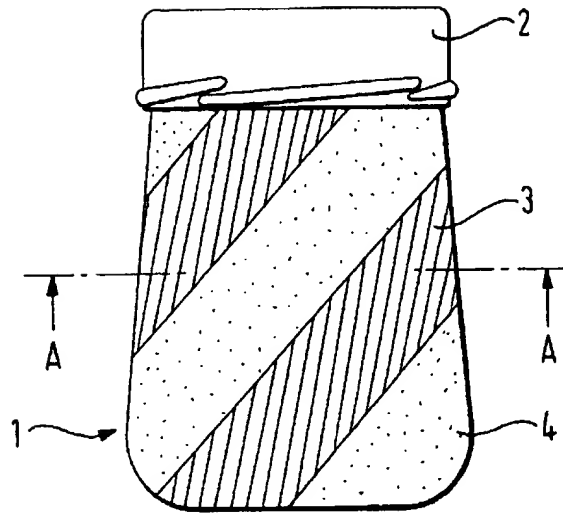


FIG. 1

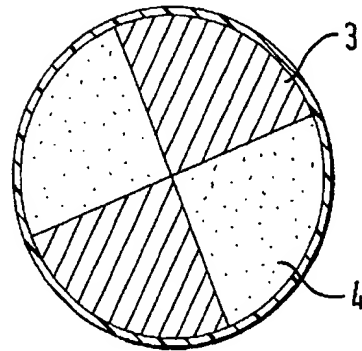


FIG. 2

50797/96

04-05-83

AD 131 48402

JA 8031677

FEB 1984

<p>84-079174/13 D13 QPPP 18.08.82          Q.P. CORP *J5 9031-677-A          18.08.82-JP-142101 (20.02.84) A23g-01 A23I-01/38          Layered spread food - comprising peanut butter and chocolate spread</p>	<p>D(3-E7, 3-H1) 229</p>
<p>C84-034023</p> <p>Compsn. is claimed which is produced by layering peanut butter and chocolate spread such that the boundaries between them in the vertical direction are distinct without being in peak-to-valley state.</p> <p>Process comprises filling peanut butter whose viscosity during filling is about 50000-150000 cps and chocolate spread whose viscosity during filling is about 100000-200000 cps into a container. Food can provide two kinds of taste at a time. (5pp Dwg.No.0/2)</p>	

⑨ 日本国特許庁 (JP)

⑩ 特許出願公開

⑪ 公開特許公報 (A)

昭59-31677

⑫ Int. Cl.<sup>3</sup>

識別記号

庁内整理番号

⑬ 公開 昭和59年(1984)2月20日

A 23 L 1.38

6971-4B

発明の数 2

A 23 G 1.00

6840-4B

審査請求 未請求

(全 5 頁)

⑭ スプレッド食品とその製造方法

⑮

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⑰ 特 願 昭57-142101

⑱ 出 願 昭57(1982)8月18日

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明 細 書

#### 1. 発明の名称

スプレッド食品とその製造方法

#### 2. 特許請求の範囲

- (1) ビーナツバターとチョコレートスプレッドとを両層の境界線が不規則な凹凸を示さない状態で容器に多層に充填して成るスプレッド食品。
- (2) 充填時の粘度が約5万～15万 cpa のビーナツバターと約10万～30万 cpa のチョコレートスプレッドとを容器に多層に充填することを特徴とするスプレッド食品の製造方法。

#### 3. 発明の詳細な説明

本発明は、新規なスプレッド食品とその製造方法に関する。

ビーナツバターとチョコレートスプレッドは、キャンパンなどに押展塗布して食するスプレッド食品として一般に広く知られているものであり、両

者を一緒に食してみても風味上の違和感は比較的小さい。また、各々の味も楽しめる。そこで、予の一つの容器に両者を混和させないで層状に充填しておけば、使用時に両者を別々の容器から取り出す不便さが除かれ便利なものとなる。ところでこの目的のための充填方法としては、通常上部に開口部のある容器の底部に、ビーナツバター用及びチョコレートスプレッド用の両種の吐出孔が交互に放射状に配列して下方を向いている充填ノズルを挿入し、充填開始と共に順次ノズルを容器から引きながら充填を完了する方法が採用される。しかしながら、ビーナツバターとチョコレートスプレッドは両者のなじみが悪いためガラス製などの透明な容器に上記のノズルで充填してみると両者の境界線が不規則な凹凸を示し外観上よくないという問題があり、従つて両者の境界線が比較的直線に近い製品は未だ市販されていない。

本発明の目的は、ビーナツバターとチョコレートスプレッドが層状に容器に充填されておりしかも両者の境界線が不規則な凹凸を示さない新規な

スプレッド食品とその製造方法を提供することである。本発明者は上記の目的を達成べく種々試験検討していたところ、両者の元素組成を当々一定範囲に定めることによりその目的が達成されることを知見しようやくして本発明を完成させたものである。

すなわち、本発明は、ビーナツバターとチヨコレートスプレッドとを両者の境界線が不規則な凹凸を示さない状態で容れ器に多量に充填して成るスプレッド食品、並びに、元素組成が約5万～15万 cps のビーナツバターと約10万～30万 cps のチヨコレートスプレッドとを容れ器に多量に充填することを特徴とするスプレッド食品の製造方法より成るものである。

以下本発明を詳細に説明する。

本発明においてビーナツバターとは、<sup>15</sup> 豆沙撈碎、ビーナツ（ビーナツペースト）にショートニング、調味料（食塩、砂糖など）、乳化剤などを加えて混和したペースト状の食品をいい、通常水分が1～2%多くても4～5%止りくらいの油性の食品

(3)

を示さない状態とは、多孔ノズルを用いて透明な容器にその底部から口部へとビーナツバター及びチヨコレートスプレッドとを多量となるように充填していつた場合に、壁が若干ひずみ勝ちな充填始端（一般に容器の底部）及び充填終端（一般に容器の口部）を除いた中央部であつて容器の内壁に現われる境界線がその長さ約5cmの範囲において壁と垂直の方向から見て凹部または凸部があつても一つ以内の状態、もしくは2つ以上あるときは、それによる凹凸形状が同じ境界線上に於いての反復性、隣接する境界線との関係での相似性のいずれかを備えている状態をいう。これらの状態は元来に際し境界線の流れを美観的にコントロールできるときに生ずるものである。従つて両層の境界線の約5cmの長さにおいて凹部または凸部が一つ以内の状態のときは、境界線がほぼ直線に近い一方向のみのゆるいカーブ（仮に凹部または凸部一つ）となり、壁が火山あるときは、例えばばねらかな収縮、崩れ、フセン状じまなどとなる。さらなる凹部または凸部が2つ以上

(5)

である。また、チヨコレートスプレッドとは、カカオサ（カカオマス粉末、ココアバターまたはココア）を酸味（通常2%以上）を含むことによりチヨコレート色とカカオの風味を示し、甜味（砂糖、ぶどう糖など）を含むことにより甘味を有するペースト状の食品をいい、好みにより主成分乳、油脂（一般に硬化油脂、ノートニングなどの高融点油脂）、乳化剤などを添加して水分の比較的少ない油性食品とする場合と、主成分化でんぷん、あるいは甘味成分（シラップ）などを使用添加して水分が比較的多い水性食品とする場合とがある。チヨコレートスプレッドを油性食品とした場合には、製品の保存中に、チヨコレートスプレッド中の水分がビーナツバター層に移行することにより速に勝ちなビーナツバターの着色が抑制される利点がある。本発明のスプレッド食品では、上記のビーナツバターとチヨコレートスプレッド（油性及び水性の両方を含む）とを四層の境界線が不規則な凹凸を示さない状態で容れ器に多量に充填してある。ここで四層の境界線が不規則な凹凸

(4)

あつて、同じ層上に於いて反復性のあるとき、あるいは同じ境界線上では反復性がなくとも隣接する境界線と相似形となるときは、一定のリズム感のある模様となる。第1図で示すのは、境界線が不規則な凹凸を示す場合の1例であり、また第2図で示すのは、不規則な凹凸を示さない場合の1例（ほぼ直線状）である。

なお図中、1は透明な容器、2はそのキャップ、3及び4は各々その容器に多量に充填してあるチヨコレートスプレッドとビーナツバター、5は両層の境界線である。

本発明で用いる容器は一般には定形性あるものが対象となるが定形性のない容器を対象としても差し支えない。また、容器の透明性は備わっていない方が容器の外から境界線模様を楽しむことができるので好ましいが、透明性が備わっていないものでも差し支えずこの場合には容器からスプーンその他によりスプレッド食品をすくい取るときなどに壁の断面模様などを楽しむことができる。多量とは、量が少なくとも2以上あることをいい、

(6)

層数が多くなつてひとつの層巾が狭くなることと  
関係となる。層の方向は一般的にはたて方向また  
は斜めの方向であるが必ずしもたてとしない。

以上述べた本発明のスプレッド食品を製造する  
には、充填時の粘度が約5万~15万 cps のビーナ  
ツバターと約10万~30万 cps のチヨコレートス  
プレッドとを各層に多量に充填すればよい。ビーナ  
ツバターの粘度が約5万 cps より低くなつても、  
またチヨコレートスプレッドの粘度が約10万 cps  
より低くなつても、さらにはビーナツバターの粘  
度が約15万 cps を超えても、またチヨコレートス  
プレッドの粘度が約30万 cps を超えても、ビーナ  
ツバターとチヨコレートスプレッドのなじみが悪  
くなるため両層の境界線が不明瞭になるのを示  
ようになるからである。両方の粘度の調整は、両  
層の選択・配合の調節もしくは充填時の温度の調  
節によつてはければよい。一般に充填時の温度を  
下げると粘度は急激に高まり、温度を上げると粘  
度は急激に低くなる。ビーナツバターとチヨコレ  
ートスプレッドとを各層に多量に充填する時は、

(7)

砂糖を添加して原料中35~45%の範囲内とすると、  
ビーナツバターとチヨコレートスプレッドの味の  
調和もよいものとなる。

次に、本発明の効果を示す試験例、及び本発明  
の実施例を説明する。

#### 試験例

ガラス製の円筒状容器(内径約6 cm、高さ約8  
cm)に、ビーナツバター用6個、チヨコレートス  
プレッド用6個から成る計12個の吐出孔つきノズ  
ルを挿入して充填を開始、充填しつつ順次垂直に  
ノズルを引き抜きながらビーナツバター100 g、  
チヨコレートスプレッド100 g計200 gを容器内  
に充填した。

その際、チヨコレートスプレッドの充填時の  
粘度を15万 cps (おで)と一定とし、ビーナツ  
バター充填時の粘度をその粘度を変えることによ  
り種々変えて充填されてできる両層の境界線の  
状況を観察したところ第1表に示すとおりとな  
つた。

(9)

例えば、ビーナツバター用の吐出孔とチヨコレ  
ートスプレッド用の吐出孔とが各々数個1個以上下  
方に開口している多孔ノズルを容器内底部近く迄  
挿入し充填しながら順次容器から引き抜くように  
すればよい。引き抜く方向を垂直と向きとすれば  
層は逆つて境界線はたて方向のものとなり、斜め  
と向きとすれば層・境界線は斜めと向きのものとな  
る。さらに垂直と向きとすると共にノズルに一  
定の非円運動を与えると、境界線は凹凸形状が反  
復性をもつた蛇行模様を形成する。

以上、本発明のスプレッド食品により、外観上  
も見映えのよい、ビーナツバターとチヨコレート  
スプレッドから成る層状の食品を製造することがで  
きる。また、本発明のスプレッド食品の製造方法  
によれば、両層の粘度の調整より容易に目的  
とする食品を製造することができる。

なお、このスプレッド食品を製造するに際して、  
ビーナツバターの甘味料を砂糖の甘味に換算して  
原料中0~5%、粘度を0.5~1.5%の各範囲内  
とし、さらにチヨコレートスプレッドの甘味料を

(8)

第 1 表

(粘度の単位: 万 cps)

ビーナツバター の粘度	1	3	5	7.5	10	12.5	15	17	20	25	30
境界線の状況	×	×	○	◎	◎	◎	○	×	×	×	×

例) また、ビーナツバターの充填時の粘度を10万  
cps (おで)と一定とし、チヨコレートスプレ  
ッド充填時の粘度をその粘度を変えることによ  
り種々変えて充填されてできる両層の境界線の  
状況を観察したところ第2表に示すとおりとな  
つた。

第 2 表

チヨコレートス プレッドの粘度	3	5	8	10	12.5	15	17.5	20	22	25	27	30
境界線の状況	×	×	×	○	◎	◎	◎	○	×	×	×	×

註(1) 表中◎、○、×印は次のことを示す。

◎: 容器の上層側及び下層側を除く中央部約  
5 cm 長において、層は凹凸が殆んどなく  
ほぼ直線状。

○: 上記と同じ5 cm 長において、経度の凹部  
または凸部が1個。

(10)

×：上記と同じ5mm長において、凹部または凸部が2個以上であつて、同一境界線上に於ける形状の反復性及び偏振する境界線との相似性のいずれも見られない。

(12) ビーナツバター及びチョコレートスプレッドは下記の原料配合のものを用いた。

イ. ビーナツバター

ビーナツペースト	83.0(単位%)
ショートニング	9.9
ぶどう糖	4.0
食塩	1.0
脂肪酸モノグリセライド	2.1

合計 100.0(%)

ロ. チョコレートスプレッド

カカオマス	7.0
砂糖	36.0
粉乳	22.0
バーム脂	34.4
レシチン	0.5

(11)

チョコレートスプレッドの原料配合(単位%)

カカオマス	7.0	ショートニング	10.0
水あめ	35.0	キサンタンガム	0.3
ぶどう糖	5.0	レシチン	0.3
煉乳	23.0	食塩	0.2
αデンプン	2.8	沸水	16.4
合計		100.0(%)	

実施例2

実施例1において充填ノズルを引き抜きながら充填するに際しそのノズルにその軸芯を中心とするゆるい石廻り回転を与えたところ、ビーナツバターとチョコレートスプレッドの境界線がラセン状を示す多層のスプレッド食品が得られ、その場合上記境界線には不規則な凹凸は見られなかつた。

実施例3

実施例1において充填ノズルを引き抜きながら充填するに際しそのノズルに正逆の回転を与えたところ、ビーナツバターとチョコレートスプレッドの境界線が波状を示す多層のスプレッド食品

(13)

ビーナツエッセンス 0.1

合計 100.0(%)

(13) 充填ノズルは、直径約3mmで、下流外周方向に印3mm長さ5mm(放射状方向の長さ)の吐出孔12孔をビーナツバター用とチョコレートスプレッド用とが交互等間隔となるように放射状に配列させたものを用いた。

上記の故から、ビーナツバターとチョコレートスプレッドとを多層に充填したときに境界線が不規則な凹凸を示さないためには、充填時の粘度がビーナツバターは約5万~15万cpsであり、チョコレートスプレッドは約10万~20万cpsであることが必要であることが理解される。

実施例1

チョコレートスプレッドの原料配合は下記のものに資し、またその充填時の粘度は15万cpsと一定とし、またビーナツバターの充填時の粘度は10万cpsと一定とした以外は試験例と同じ条件にして多層スプレッド食品を製造した。このものの層の境界線はほぼ直線状をしていた。

(12)

が得られた。この境界線は偏振するものが全てはほぼ相似形でありリズム感のあるものであつた。

4. 図面の簡単な説明

図は、ガラス製の容器にビーナツバターとチョコレートスプレッドとをたての方向に多層に充填したスプレッド食品の正面図をほぼ実寸サイズで示すものであり、その内第1図は従来例を示し、また第2図は本発明の実施例を示す。

1…容器、2…キヤップ、3…チョコレートスプレッド、4…ビーナツバター、5…境界線。

特許出願人 キューピー株式会社

代理人 藤 野 茂 規



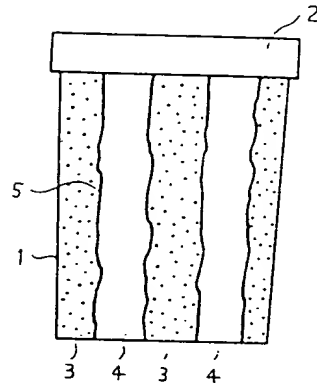
(14)

420/90 421'70 JAC 59-31677

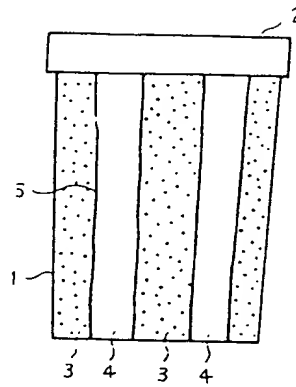
特開昭59-31677 (5)

N

第1図



第2図





JE 1102174  
JUN 1986

86-166545/26 QP CORP 20.10.84-JP-219392 (19.05.66) A23d-05 A23l-01/38 Food spread prepn. - by putting into container peanut butter and another oily spread, each with different viscosities C86-071540	D13 QPPP 20.10.84 *J6 1100-174-A	D(3-C)
Peanut butter and another oily spreading food can be put together into a container, with clear sepn. and vertical border lines. This is carried out by using peanut butter having a viscosity of 50,000 to 150,000 cps and another oily spread having a viscosity of 100,000 to 200,000 cps. USE - By controlling the viscosities of the two components, good conditions for putting into the container can be achieved. (5pp Dwg.No 0/2)		

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⑨ 日本国特許庁 (J P)

⑪ 特許出願公開

⑫ 公開特許公報 (A)

昭61-100174

⑬ Int. Cl.

A 23 L 1/38  
A 23 D 5/00

識別記号

庁内整理番号

8412-4B  
Z-7421-4B

⑭ 公開 昭和61年(1986)5月19日

審査請求 未請求 発明の数 1 (全5頁)

⑮ 発明の名称 スプレッド食品とその製造方法

⑯ 特 願 昭59-219392

⑰ 出 願 昭59(1984)10月20日

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明 細 書

1. 発明の名称

スプレッド食品とその製造方法

2. 特許請求の範囲

(1) ビーナツバターと他の油性スプレッドとを両層の境界線が不規則な凹凸を示さない状態で容器に多層に充填して成るスプレッド食品。

(2) 充填時の粘度が約5万~15万cpsのビーナツバターと約10万~20万cpsの他の油性スプレッドとを容器に多層に充填することを特徴とするスプレッド食品の製造方法。

3. 発明の詳細な説明

(1) 産業上の利用分野

本発明は、新規なスプレッド食品とその製造方法に関する。

(2) 従来の技術

ビーナツバターと他の油性スプレッド、例えば

チョコレート、粉乳、油脂、砂糖等を混練してなるホワイトクリームなどは、各々単独に生産・販売されて、食するスプレッド食品として一般に広く知られている

ものであり、両者を一緒に食してみても風味上の異和感是比较的少ない。また、各々の味も楽しめる。そこで、予め一つの容器に両者を混和させないで層状に充填しておけば、使用時に両者を別々の容器から取り出す不便さが除かれ便利なものとなる。

(3) 発明が解決しようとする問題点

ところでこの目的のための充填方法としては、通常上部に開口部のある容器の底部に、ビーナツバター用及び他の油性スプレッド用の両種の吐出孔が交互に放射状に配列して下方を向いている充填ノズルを挿入し、充填開始と共に順次ノズルを容器から抜きながら充填を完了する方法が採用される。しかしながら、ビーナツバターと他の油性スプレッドは両者のなじみが悪いためガラス製などの透明な容器に上記のノズルで充填してみると両者の境界線が不規則な凹凸を示し外観上よくないという問題があり、従って両者の境界線が比較的直線に近い製品は未だ市販されていない。本発明の目的は、ビーナツバターと他の油性ス

ブレッドが層状に容器に充填されておりしかも両者の境界線が不規則な凹凸を示さない新規なスプレッド食品とその製造方法を提供することである。本発明者は上記の目的を達するべく種々試験検討していたところ、両者の充填時の粘度を各々一定範囲に定めることによりその目的が達せられることを知見しようやくにして本発明を完成させたものである。

#### (4) 問題点を解決するための手段

すなわち、本発明は、ピーナツバターと他の油性スプレッドとを両層の境界線が不規則な凹凸を示さない状態で容器に多層に充填して成るスプレッド食品、並びに、充填時の粘度が約5万～15万cPのピーナツバターと約10万～20万cPの他の油性スプレッドとを容器に多層に充填することを特徴とするスプレッド食品の製造方法より成るものである。

以下本発明を詳細に説明する。

本発明においてピーナツバターとは、焙炒粉砕ピーナツ(ピーナツペースト)にショートニング、

調味料(食塩、砂糖など)、乳化剤などを加えて混和したペースト状の食品をいい、通常水分が1～2%多くても4～5%止りくらいの油性の食品、油性のスプレッドである。また、他の油性のスプレッドとは、主に油脂と甘味料(砂糖、ぶどう糖など)を含むことにより甘味を有するペースト状の食品からピーナツバターを除いたものをいう。好みにより主に粉乳、乳化剤などを添加するが、油脂の相の中に甘味料などが分散した形で存在し、いずれにしても水分が比較的少ない油性の食品である。本発明の油性スプレッドからは、カカオ分(カカオマス粉末、ココアバターまたはココア)を含むものも除外される。カカオ分を含むとその味が強く影響しピーナツバターの特有な風味が極めて乏しいものになるからである。なお、油脂には、クリームその他動物性のものから植物性のものまで含まれ、その種類に限定はない。本発明のスプレッド食品では、上記のピーナツバターと他の油性スプレッドとを両層の境界線が不規則な凹凸を示さない状態で容器に多層に充填してある。

らに凹部または凸部が2つ以上あって、同じ層上において反復性のあるとき、あるいは同じ境界線の上では反復性がなくとも隣接する境界線と相似形となるときは、一定のリズム感のある模様となる。第1図で示すのは、境界線が不規則な凹凸を示す場合の1例であり、また第2図で示すのは、不規則な凹凸を示さない場合の1例(ほぼ直線状)である。

なお図中、1は透明な容器、2はそのキャップ、3及び4は各々その容器に多層に充填してある油性スプレッドとピーナツバター、5は両層の境界線である。

本発明で用いる容器は一般には定形性あるものが対象となるが定形性のない容器を対象としても差し支えない。また、容器の透明性は揃っていない方が容器の外から境界線模様を楽しむことができるので好ましいが、透明性が揃っていないものでも差し支えなく、この場合には容器からスプーンその他によりスプレッド食品をすくい取るときなどに層の断面模様などを楽しむことができる。

ここで両層の境界線が不規則な凹凸を示さない状態とは、多孔ノズルを用いて透明な容器にその底部から口部へとピーナツバター及び他の油性スプレッドとを多層となるように充填していった場合に、線が若干ひずみ勝ちな充填始端(一般に容器の底部)及び充填終端(一般に容器の口部)を除いた中央部であって容器の内壁に現われる境界線がその長さ約5cmの範囲において線と直角の方向から見て凹部または凸部があっても一つ以内の状態、もしくは2つ以上あるときには、それによる凹凸形状が同じ境界線上においての反復性、隣接する境界線との関係での相似性のいずれかを備えている状態をいう。これらの状態は充填に際し境界線の流れを実質的にコントロールできるときに生ずるものである。従って両層の境界線の約5cmの長さにおいて凹部または凸部が一つ以内の状態のときは、境界線がほぼ直線に近い一方方向のみのゆるいカーブ(故に凹部または凸部は一つ)となり、層が火山あるときは、例えばなめらかな、波状、波打状、波打状、波打状などとなる。さ

多層とは、層が少くとも2以上あることをいい、層数が多くなってひとつの層巾が狭くなるとして良様となる。層の方向は一般的にはたて方向または斜め方向であるが水平方向も差し支えない。

以上述べた本発明のスプレッド食品を製造するには、充填時の粘度が約5万～15万cpsのピーナツバターと約10万～20万cpsの他の油性スプレッドとを容器に多層に充填すればよい。ピーナツバターの粘度が約5万cpsより低くなっても、また他の油性スプレッドの粘度が約10万cpsより低くなっても、さらにはピーナツバターの粘度が約15万cpsを超えても、また他の油性スプレッドの粘度が約20万cpsを超えても、ピーナツバターと他の油性スプレッドのなじみが悪くなるためか両層の境界線が不規則な凹凸を示すようになるからである。両者の粘度の調整は、原料の選択・配合の調節もしくは充填時の品温の調節によってはかればよい。一般に充填時の品温を下げると粘度は急激に高まり、品温を上げると粘度は急激に低くなる。ピーナツバターと他の油性スプレッドとを容器に多層に充填するには、例えば、ピーナツバター用の吐出孔と他の油性スプレッド用の吐出孔とが各々最低1個以上下方に開口している多孔ノズルを容器内底部近く迄挿入し充填しながら順次容器から引き抜くようにすればよい。引き抜く方向を垂直上向きとすれば層は従って境界線はたて方向のものとなり、斜め上向きとすれば層・境界線は斜め上向きのものとなる。さらに垂直上向きとすると共にノズルに一定の正逆回転を与えると、境界線は凹凸形状が反復性をもった蛇行模様を形成する。

(5) 発明の効果

以上、本発明のスプレッド食品により、外観上も見映えのよい、ピーナツバターと他の油性スプレッドから成る層状の食品を楽しむことができる。また、本発明のスプレッド食品においては、ピーナツバターと隣接して層をなすスプレッドが油性であり水分が少ないため、製品保存中にこの水分がピーナツバター側に移行してピーナツバターの明るい色を暗褐色に変色させることもない。さら

に、本発明のスプレッド食品の製造方法によれば、両者の粘度の調整により容易に目的とする食品を製造することができる。

なお、このスプレッド食品を製造するに際して、ピーナツバターの甘味料を砂糖の甘味に換算して原料中0～5多、食塩を0.5～1.5多の各範囲内とし、さらに他の油性スプレッドの甘味料を砂糖に換算して原料中2.5～4.5多の範囲内とすると、ピーナツバターと油性スプレッドの味の調和もよいものとなる。

次に、本発明の効果を示す試験例を説明する。

#### 試験例

ガラス製の円筒状容器（内径約6cm、高さ約8cm）に、ピーナツバター用6個、他の油性スプレッド用6個から成る計12個の吐出孔つきノズルを挿入して充填を開始、充填しつつ順次垂直にノズルを引き抜きながらピーナツバター100g、

他の油性スプレッド100g、計200gを容器内に充填した。

(1) その際、他の油性スプレッドの充填時の粘

度を15万cps（20℃）と一定とし、ピーナツバター充填時の粘度をその品温を変えることにより種々変えて充填されてできる両層の境界線の状況を観察したところ第1表に示すとおりとなった。

第1表

（粘度の単位：万cps）

ピーナツバターの粘度	1	3	5	7.5	10	12.5	15	17	20	25	30
境界線の状況	×	×	○	◎	◎	◎	○	×	×	×	×

(2) また、ピーナツバターの充填時の粘度を10万cps（20℃）と一定とし、他の油性スプレッド充填時の粘度をその品温を変えることにより種々変えて充填されてできる両層の境界線の状況を観察したところ第2表に示すとおりとなった。

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第 2 表

他の油性 スプレッドの粘度	3	5	8	10	12.5	15	17.5	20	22	25	27	30
境界線の 状況	×	×	×	○	◎	◎	◎	○	×	×	×	×

注(1) 表中◎、○、×印は次のことを示す。

◎：容器の上端側及び下端側を除く中央部  
約5cm長において、線は凹凸が殆んど  
なくほぼ直線状。

○：上記と同じ5cm長において、軽度の凹  
部または凸部が1個。

×：上記と同じ5cm長において、凹部また  
は凸部が2個以上であって、同一境界  
線における形状の反復性及び隣接す  
る境界線との相似性のいずれも見られ  
ない。

(2) ビーナツバター及び他の油性スプレッド  
は下記の原料配合のものを用いた。

射状に配列させたものを用いた。

上記の表から、ビーナツバターと他の油性スプレッドとを多層に充填したときに境界線が不規則な凹凸を示さないためには、充填時の粘度がビーナツバターは約5万～15万cpsであり、他の油性スプレッドは約10万～20万cpsであることが必要であることが理解される。

#### (6) 実施例

##### 実施例 1

他の油性スプレッドの原料配合は下記のものに  
変更し、またその充填時の粘度は15万cpsと一  
定とし、またビーナツバターの充填時の粘度は  
10万cpsと一定とした以外は試験例と同じ条件  
にして多層スプレッド食品を製造した。このもの  
も層の境界線はほぼ直線状をしていた。

他の油性スプレッドの原料配合 (単位%)

ショートニング 45.0 レシテン 0.3

乳脂肪 2.0

砂と糖 20.0

乳糖 10.0

#### イ. ビーナツバター

ビーナツペースト 83.0 (単位%)

ショートニング 9.9

ぶどう糖 4.0

食塩 1.0

脂肪酸モノグリセライド 2.1

合 計 100.0 (%)

#### ロ. 他の油性スプレッド

植物油脂 50.0

乳脂肪 7.0

砂と糖 25.0

乳糖 5.0

全脂粉乳 13.0

レシテン 0.5

バニラエッセンス 0.1

合 計 100.0 (%)

(3) 充填ノズルは、直径約3cmで、下端外側容  
りに巾3mm長さ5mm(放射状方向の長さ)の  
吐出孔12箇所をビーナツバター用と他の油性  
スプレッド用とが交互等間隔となるように配

全脂粉乳 12.5

合 計 100.0 (%)

#### 実施例 2

実施例1において充填ノズルを引き抜きながら  
充填するに際しそのノズルにその軸芯を中心とす  
るゆるい右廻り回転を与えたところ、ビーナツバ  
ターと他の油性スプレッドの境界線がラセン状を  
示す多層のスプレッド食品が得られ、その場合に  
上記境界線には不規則な凹凸は見られなかった。

#### 実施例 3

実施例1において充填ノズルを引き抜きながら  
充填するに際しそのノズルに正逆の回転を与えた  
ところ、ビーナツバターと他の油性スプレッドの  
境界線が波模様を示す多層のスプレッド食品が得  
られた。この波模様は隣接するものが全てほぼ相  
似形でありリズム感のあるものであった。

#### 4. 図面の簡単な説明

本発明は、ガラス製の容器にビーナツバターと他の  
油性スプレッドとをたての方向に多層に充填した  
スプレッド食品の正面図をほぼ実寸サイズで示す

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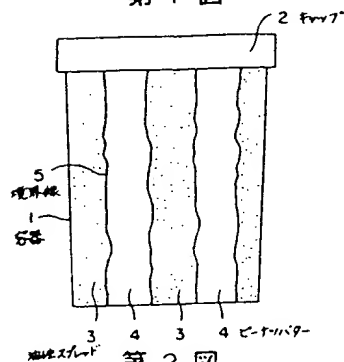
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ものであり、その内第1図は従来例を示し、また  
第2図は本発明の実施例を示す。

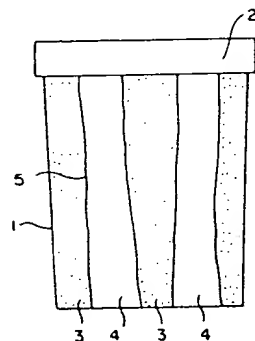
1…容器、2…キャップ、3…他の油性スプレ  
ッド、4…ピーナツバター、5…境界線。

特許出願人 キューピー株式会社  
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第1図



第2図



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